

Adult residential college awaits funds assurance

by Sue Reid

A new residential college for adults is to be set up in Yorkshire next year if the Department of Education and Science can provide adequate funding.

The college, to be established on the site of Wainthorpe Castle College of Education, Burnley, due for closure next summer under the Government's plans for teacher training cutbacks, has the full support of Sheffield, Barnsley, Doncaster and Rotherham education authorities.

They have been discussing the scheme for four years and following top-level talks with Mr Baker, minister of state overseeing higher education, announced last week that the college will take 50 students when it opens and 120 within two or three years.

A spokesman for Sheffield education authority said this week that the recurrent cost of maintaining it with 50 students would be £140,000 a year. With 120 it would reach £260,000.

The authorities hoped the DES would provide 50 per cent of the recurrent costs. The spokesman added: "If any other source of funds more than a token sum we will have to cut back on the number of students."

But the DES is expected to support the college. The four "guarantee" authorities have been asked to by Mr Baker to examine their costs and detailed discussions

with the Government are now likely to be finalized by August.

"One and two year courses will be offered as well as ten-week courses for men and women from Yorkshire and Humberside and other parts of the region. The DES is expected to give grants towards long term students and to help meet the cost of part of this work", said the spokesman.

"It will be a learning community for men and women who are making or wish to make a personal contribution to public life, in central or local government, the trades unions and community organizations."

A steering committee responsible for planning the college and including representatives of Bradford, Calderdale, Derbyshire, Humberside, Kirkstede, Leeds and Nottingham education authorities, universities of the region, the Workers' Educational Association and Sheffield Polytechnic, has been established.

Following last week's discussions, Councillor Peter Horton, the chairman, said: "In view of what the minister has said we shall examine our costs very carefully and look into any sources of funds which might help us to get the college opened."

"I would hope to conclude our discussions satisfactorily with the ministry by mid-summer. In that case the college will be open to its first students in September next year."

Police investigate confidential poly papers' theft

Police are investigating the theft of confidential papers from the Polytechnic of North London's administration block occupied until last weekend by students protesting over tuition fee increases.

Discovery of the safe-breaking was made by polytechnic staff after the students had been ordered to end their two-month sit-in by a High Court judge. The occupiers threatened to defy the court order but left the building without protest on Saturday when police arrived.

A polytechnic spokesman said this week that the missing papers belonged to Mr Terence Miller, the college's director.

The occupation was also staged in protest over Inner London Education Authority plans to reduce over-student numbers in the London polytechnics. The administration block of the college has been occupied in shifts throughout the two-month action, including the Easter vacation.

A court possession order was sought by the polytechnic when it was feared that the college's admissions process for the coming academic year would be put in jeopardy.

A spokesman for the PNL students' union declared this week that so approaches from the police or the polytechnic authorities had been made regarding the alleged theft. But the Metropolitan Police said: "A safe-breaking at the college has been referred to us. It is being investigated by the CID."

DES to press for increase in students living at home

A Department of Education and Science working party will complete its nine-month investigation of student catering and residence this month. Its report, likely to be issued as a bulletin to local authorities in the summer, will press for further reduction of catering charges and increases in the number of students living at home.

Much of its activities have been statistical and methodological. Many months have been spent arguing with the local authorities about the actual size of the deficit most polytechnics and colleges run on their catering accounts.

"On general policy there is little

Cambridge launches international old-boys' society

A Cambridge Society has been launched by the university to keep former members in touch. The Duke of Edinburgh, chancellor of the university, has agreed to be patron.

Membership will be open to all former members of whom there are an estimated 10,000 around the world. Through a magazine, Cambridge, and meetings they will be kept informed about work at the university and what other members are doing.

The idea is that such a society would be better able to keep members informed about certain aspects of the university than individual colleges.

A prospectus on the society says that no college would set out the background to the building of Robinson College, for instance, or the new music school. The effects of the Sex Discrimination Act and the pros and cons of undergraduate participation in university affairs would all be better dealt with by a university society than a college.

The society might also act as a mouthpiece for the university, which is now being periodically attacked on the grounds that it draws from a narrow range of largely independent schools.

It is hoped also that branches will be set up, both in this country and abroad, which will arrange meetings.

The cost to members who receive the magazine and have use of facilities at the University Centre, Grant Place, in Mill Lane, is £3 a year or £25 for 10 years (£35 for a married couple). Firms, companies and other bodies may become associate members.

Inquiries to The Cambridge Society, Pargues, Court, Cambridge.

Commonwealth jobs shrink

The Commonwealth job market for academics has shrunk in recent years, according to the latest report by the Association of Commonwealth Universities published this week.

In 1975-76 the number of job vacancies fell due to university re-orientation. The report notes that the number of inquiries received from prospective candidates in that year was nearly 20 per cent down on 1974.

The report lists the continuing activities of the ACU: it administers the Commonwealth Scholarship Fellowship plan, schemes for visiting professors, academic exchanges, the Marshall scholarships,



Mr Stan Broadbridge

HE requirements blamed for too-specialized curriculum

by Frances Gibb

Higher education is to blame for a highly specialized school curriculum which is detrimental to the world of work, Mr Max Morris, headmaster of Wilkesden High School, said this week.

He told a conference at the Dugby Stuart College of the Rosehampton Institute of Higher Education that the two A-level university entry requirement had overwhelmingly determined what was taught in schools.

"It is not the job of schools to provide specialists for higher education. The best service the schools can offer for the world of work is a broad education, rather than produce premature specialists."

Mr Morris, a former general secretary of the National Union of Teachers, was addressing 200 teachers and lecturers at the conference, held on the topic of "the role of education".

A review of degree courses, not sixth form courses, was needed, he went on. "It is wrong for degree courses to over-rely on school and for those in higher education to make schools do the first part of their job." He attacked the "pocket-calculating bureaucrats" of the Department of Education and Science, who, he said, set new sixth forms as A-level machines.

DES proposals for reform of sixth forms and the introduction of sixth form colleges would not just be a major disaster for comprehensive schools, but would mean the end of comprehensive education.

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OU honorary degree for Yehudi Menuhin

Yehudi Menuhin, the violinist, pianist, conductor, composer, music and theatre director, is to be an honorary doctorate by the University this year.

Results of a postal vote by the Congregation—the body representing most of the university's senior members—on the question of conferring the degree showed 741 to 355 in favour of the university conferring the degree on the violinist.

The vote was cast after a congregation meeting in March passed the same resolution by a majority of only three. Opponents of the degree, who include at least one women's college head,

hoped a postal ballot would overturn the decision.

However, advocates of mixed colleges have met with the entire battle, however. The next congregation meeting on May 17 could receive a proposal that the process of conferring degrees be slowed down to allow a number of colleges to be allowed to stay single sex. A group of academics led by Mr John Lucas, of Merion College, argues that Oxford would be damaged by "undue haste".

If, as seems likely, this proposal is rejected by congregation, individual colleges can proceed with their own degrees enabling them to admit both sexes, probably in 1979.

Ruskin to offer fine arts degree

Oxford University will offer a degree course in fine art from October 1978, the university congregation agreed last week. It will be run at the Ruskin School of Drawing and Fine Art, replacing the certificate in fine art offered by the school at present.

The change will bring the school into closer contact with the university. It will be under the general board of the faculties, like other departments, instead of a direct grant department.

Students taking the degree course will qualify for a mandatory grant instead of a discretionary grant as at present.

They will need a minimum of two A levels (which the school has in any case required from conference students in recent years), take the university entrance examination and a practical for the school. The course will cover drawing, painting, printmaking, sculpture.

British Student Association announces cheap travel plan

by Peter Wilby

Cheap travel services were announced this week by the newly formed British Student Association.

The association, now six months old and 6,000 strong, was formed as an alternative to the National Union of Students, which has 800,000 members. Unlike the NUS, the BSA allows individual members to elect its executive officers and to decide on constitutional issues.

In a referendum at the beginning of this year, the members decided by a small majority that the association should be a service organization, concentrating on commercial, cultural and sporting activities, rather than a campaigning, political union. The first president is 28-year-old Michael Pearl, a graduate law student at St Edmund House, Cambridge.

The new travel services are available to all students whether BSA members or not. The association's members expect to capitalize on the collapse of the NUS's own travel service last year. They point out that they are able to offer flights to destinations throughout the world and that their services are competitively priced, run by students for students, added Mr Brown. Report, page 11

EEC funds UK research

The European Commission announced financial aid of £259,000 for ten British research projects. Two are at the Physics Department of Central London; a contribution to the development of a solar heating of mass materials and £4,476 for microelectronics.

Three university projects benefit: further research on thermal energy at Oxford (DES); solar energy at Leeds (DES); physical chemistry at Keele (£5,420).

Sir Hugh takes over

Professor Sir Hugh Ford, who was department of mechanical engineering at Imperial College London, took over from Mr M'Ewan as President of Institution of Mechanical Engineers this week.

Strathclyde awards

Lord Todd, Chancellor of Strathclyde University, has conferred honorary BSc degrees on George Hitchings (vice-president of research at British Atomic Energy, USA, until 1959) and Professor Mieczyslaw Sienko (Professor of Chemical Engineering at the Technological University of Lodz, Poland).

Honorary degrees of doctorate were awarded to Mr W. D. Wall, director of Centre for Policy and Research in the Weir Group and Clydebank, and Dr Czeslaw Losiak (undergraduate secretary of the Polish organization Polonia) and Matthew Linnings (general manager of exploration and production of Petroleum Development).

US youth work exchange

The Central Bureau for Educational Visits and Exchanges has announced a new programme of fellowships to the United States for young people and social workers next spring.

Royal Society elects

The Royal Society has elected five new foreign members: Mr Yoshio Ebashi, professor of physiology at Tokyo University; Professor Erich Hückel, professor of mathematics at University of Bonn; Professor Marking University (West Germany); and Ebrahim Kazem, physicist at the Weizmann Institute of Science.

Teesside library program

The first stage of Teesside library program is complete. The 1962,000 book stock will be transferred to the new building, modern two-story block with 100,000 books and 500 seats.

Majority Oxford vote gives go-ahead to new mixed college regulations

by David Walker

A majority vote by members of the Oxford University Congregation has lifted the last obstacle to colleges going co-educational within two years if they wish.

Results of a postal vote by the Congregation—the body representing most of the university's senior members—on the question of conferring the degree showed 741 to 355 in favour of the university conferring the degree on the violinist.

The vote was cast after a congregation meeting in March passed the same resolution by a majority of only three. Opponents of the degree, who include at least one women's college head,

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Science lobby too weak, says Mrs Williams

by Sue Reid

The voice of science is not being heard in the current government, according to Mrs Williams, secretary of state for education and science.

"Whereas, in fields like the arts, I am anxious continually of a lobby pressing for greater expenditure in science, there is no lobby" she told the Association of British Science Writers this week.

Mrs Williams hinted that basic research might fare better in the scramble for public funds if more scientists were prepared to exert themselves to influence politicians and civil servants.

She made it clear that they would do better to argue the long-term importance of basic research for the economic and industrial future of the country, than to make the cultural appeal that "the pursuit of knowledge is an activity necessary to human aspirations and central to the human condition".

The two aspects of British science that most worry Mrs Williams are the problem of sustaining sufficient innovative success to keep the next generation of young scientists in this country, and the discrepancy between Britain's superb international reputation for pure research and its consistent failure to apply the knowledge in industry.

The latter could be blamed partly on the universities for their old-fashioned courses for scholarship and pure study for its own sake, which was now unique to the United Kingdom, Mrs Williams said.

In schools too teachers tended to "save their brightest pupils from the dreful fate of going into industry". The result was that the general less able students found their way into applied science and technology.

Mrs Williams said that although science and engineering applications have been rising since 1974-75, the number of students taking university courses this year, and 7,000 in polytechnics and further education.

"We will now be considering what assistance we would be able to offer as a Conservative government towards giving full and fair recognition to the college's qualifications", Dr Hampson said.

Fire safety appeal launched

Edinburgh University has launched a £250,000 appeal to expand its department of fire safety engineering.

The aim is to build research laboratories and add two lecturers to the present staff of three.

The department has offered an MSc in fire safety engineering since 1974 and will provide a major engineering course from the coming year. It is so runs numerous short courses for industry.

The appeal is being made primarily to industry and commerce, backed by a message from the Duke of Edinburgh, the university's chancellor, who points out that the department "sets out to tackle the whole problem of accidental fires with the objective analytical approach of a scientific discipline".

The university aims to "provide a stream of qualified fire safety engineers to help carry out those essential tasks. The amount that is being asked for is £250,000 over seven years. Compared with an average house over a similar period still slim".

Nursing unit appoints head

Chelsea College has appointed Mrs Caroline Cox, head of the sociology department at the Polytechnic of North London, as the first director of its new nursing education research unit.

The unit, which is funded by the Department of Health and Social Security, will be part of the college's department of nursing studies. It has been set up to design and run studies in nursing education, develop methods and techniques for use in research and serve as an information centre.

Mrs Cox began her career at the London Hospital, qualified as a state registered nurse in 1958 and spent some time on the staff of Fagrawa General Hospital.

Next week

David Walker on academics' pay
Clive Cookson starts a three-part series on medical education
Edward Norman reappraises capitalism
Arnold McMillan on Doris Paster-nak
Ino Scott-Kilvert reviews a new study of Cavinay
Reorganization of teacher training: Scotland
Peter Wilby on the Architects Association
The Open University in America

Tories 'will recognize Buckingham'

by Sue Reid

The licences offered by University College, Buckingham, are likely to gain full recognition as the equivalent of a traditional degree if the Conservative Party wins power.

Dr Keith Hampson, vice-chairman of the party's parliamentary education committee, indicated this week that a refusal by Mr Coker, minister of state overseeing higher education, to meet Professor Max Beloff, principal of the "independent university", the Conservative Party was strongly criticised by the Government's attitude towards the college and its qualifications.

Dr Hampson claimed this week that the Social Science Research Council had refused to finance literature of the college going on to postgraduate work despite the fact that the universities at London, Birmingham, Manchester and Glasgow had agreed to consider such applications.

The Civil Service Commission and the Ministry of Defence had been unwilling to hold discussions with the university and had made no ruling about licences of the college, whose first students will graduate this December.

Dr Hampson said: "I am disturbed at the lack of willingness in the Civil Service Commission to discuss this matter fully and it seems to me that they are acting on the advice of the Department of Education and Science."

He added: "The Government ought to make its position clear and publicly state if it favours the college and its qualifications or if it is trying to make its life as difficult as possible."

The Law Society, the Council for Legal Education, the Institute of Chartered Accountants and the Institute of Chartered Secretaries and Administrators had each given the Buckingham licence recognition equivalent to a degree.

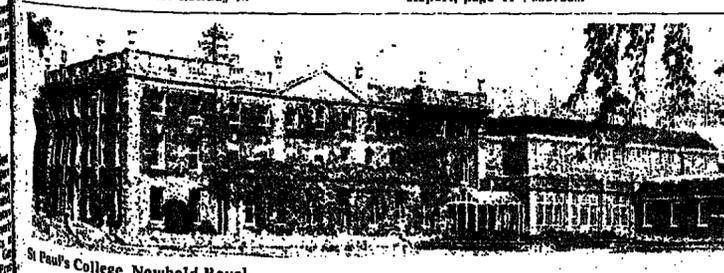
"We will now be considering what assistance we would be able to offer as a Conservative government towards giving full and fair recognition to the college's qualifications", Dr Hampson said.

Postgraduate professional training for teachers is one of the key areas to be funded by a new Conservative "task force" on engineering, education and industry.

The task force, which comprises top academics, trade unionists, and businessmen, is to have its first meeting in London next week and report by November. It is chaired by Professor John Thornton, head of the department of mechanical engineering at Newcastle University, and contains representatives including Lord Shell, GKN and BCC.

Other topics to be examined include the relevance of engineering education to present industrial needs, the relevance of schools, further and higher education to industry, and the incentives needed to make industrial engineering more attractive to young people.

The task force is part of a wider campaign by the Tories to foster links between their policy-makers and those in research. Dr Keith Hampson, MP for Ripon, has been appointed party liaison officer, with the job of visiting universities and polytechnics and finding academics (of whatever political persuasion) prepared to offer their expertise.



£2.5m benefit expected from college closure

The Sisters of Charity of St Paul's College, Newbold Revel, are expected to make £2.5m from the closure of the college of education made compulsory because of the Government's cut in teacher training colleges.

The estate, which has residential accommodation for 230 students, has an estate of 324 acres which was mentioned in Domesday Book. The estate includes a lake, woods, sports facilities and a physical education centre.

At present, it is owned by the Roman Catholic Order, the Sisters of Charity. Although its planning category is educational, the agents

believe that the local authority would consider alternative "administrative" uses. Details are being circulated to diplomatic cultural attaches in Britain of the oil-rich countries.

The estate came into the possession of the Revell family in 1166 and later was acquired by Sir Thomas Malory, author of *Morte d'Arthur*. The Yorkshire family of Skipton were lords of the manor of Newbold Revel manor in the 16th century and the present manor was built during the reign of Queen Anne.

Warwickshire, includes a Queen Anne mansion and is expected to attract interest from overseas as well as home buyers.

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ACADEMIC DEVELOPMENTS

UMIST acts to counter maths teacher shortage

by Judith Judd

A degree course to equip graduates to meet the serious shortage of qualified mathematics teachers in schools is to be introduced this October at the University of Manchester Institute of Science and Technology.

The course, which will lead to a Bachelor of Science degree in mathematics and education, has been planned jointly by the mathematics department at UMIST and the education department at Manchester University.

Poly offers part-time engineering

Sheffield City Polytechnic is to offer a new part-time degree course in engineering. Students will devote only one day and one evening a week to the course, so it will enable industrial personnel to work towards a professional qualification without sacrificing their present jobs.

The course provides for some specialization in civil, electrical and electronic, manufacturing and mechanical engineering. The normal entry qualification will be a good Higher National Certificate in one of a range of engineering or applied science subjects.

New chance to compare East and West

by Sue Reid

Students will have the opportunity of comparing the economic and political systems of Western and Eastern Europe, including Russia, within an interdisciplinary degree course in European Studies to be launched at Wolverhampton Polytechnic this autumn.

Town planning attitude is vocational and academic

The school of Town Planning at Leeds Polytechnic has gained approval from the Council for National Academic Awards to operate a four-year degree course, starting in October 1977.

The course will be both professional and academic in content. It seeks to avoid the image of planning schools as being simply "production lines" for local government officers.

Computing for businessmen

Businessmen can broaden their knowledge of computers and statistics in management through a new post-experience degree at the Cranfield Institute of Technology, Bedford.

The degree, run by Cranfield school of management, is an MSc in business systems. It is a year's full-time course, aimed primarily at managers on secondment from their firms working closely with the firm's own training programmes.

Health economics MSc at York

York University, a major centre of research into health policy and the application of economics to the National Health Service, is to launch a new postgraduate course in health economics this autumn.

13 languages in Newcastle BA

Sanskrit, Spanish and Swedish are three of the 13 languages offered in the new BA honours course in Linguistics at Newcastle University from October.

Salford goes into electroacoustics

Salford University is introducing three one-year full-time BSc courses in electroacoustics. It is being organized jointly by the department of applied acoustics and the department of electrical engineering.

DHSS to help OU course

The Department of Health and Social Security is to help fund a new Open University course which will extend the problems and needs of the increasing number of older people in Britain.

for the usual jobs in planning administration. Towards this end, students are likely to take one of several specialized options, including conservation studies. This will be in addition to preparing their own specialized dissertations.

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In the academic job market, April is the kinder month. The number of posts advertised reaches a peak which declines through the summer. By contrast, December is the trough for vacancies.

A breakdown of the jobs advertised in The THES last month shows posts that there are far fewer posts than there were a few years ago, but also a change in the pattern of where they are offered.

On April 15 there were roughly 37 jobs in British universities, 16 in the polytechnics and 11 from colleges of education and institutes of higher education: a total of 64. There also were 75 jobs from abroad.

In the equivalent week in 1973 there were 67 (university double) jobs in British universities, 82 (four times as many) jobs in the polytechnics and 17 in the colleges of education: a total of 166. There were far fewer jobs from abroad—about 28.

Taking the week before, the pattern is repeated. This year, on April 8, there were roughly 70 jobs from abroad (37 in 1973), 16 in British universities (69 in 1973), 16 in the polytechnics (80 in 1973) and 13 in colleges and institutes of higher education (17 in 1973). That is a total of 45 British jobs this year compared with 166 in 1973.

The picture is reinforced by some statistics from the Association of University Teachers. Based on volume 6 of the education statistics published by the University Grants Committee. These show that in 1964/65, there were 11,191 lecturers and assistant lecturers in universities and polytechnics. There were 109,167 in 1972/73, there were 19,144 lecturers and assistant lecturers, and practically the same figure, 19,167, in posts four years later, in 1975/76.

The lecturer and assistant lecturer grade is the one most frequently advertised. Senior lecturer posts occasionally appear, but these are generally in new subjects, or where the members of a department are all young and the university has to seek outside for senior lecturers. Nearly all lecturerships are advertised, although there is a legal obligation for universities (or polytechnics) to do so.

The steady state shown in the figures is partly a reflection of the slower rate of increase in student numbers and partly because of the freeing of posts in the last two or three years as a result of the financial cuts.

In polytechnics also, expansion has slowed right down and there has been a transfer from the closure of the colleges of education: redeployment of college lecturers in polytechnics means stiffer competition for outsiders.

Where have all the jobs gone?



64 UK jobs were advertised in The THES on April 15, 1977. There were 166 in the same issue of 1973. In the first of four articles on academic career prospects Frances Gibb writes on the shrinking job market

At Nottingham University, for example, a lecturer said that if a post in English was offered, with no particular specialist involvement, there were some 100 applications. At Liverpool, Professor P. Edwards, of the English department, said that even for specialist posts there were 30 to 40 applicants. The number was roughly three times what it had been in the sixties, and for particularly attractive places, such as York and London, there were sometimes 200 applicants.

In social sciences, the Polytechnic of Central London said it always had plenty of applicants. For a psychology post in March it had 23, which was considered high. Another very popular area with applicants is environmental science: geography (which recently at Swansea attracted 63 applicants for a lecturership); zoology (again at Swansea, 50 applicants); to a less extent geology (at Bedford, Dr E. P. Rose estimated there would normally be 20 to 30 for a post) and biology (which attracted 40 applicants for a lecturership at North Staffordshire Polytechnic).

Demand for jobs in the pure sciences, however, appears to be equally high. It is probably more difficult to get a post in a subject relatively less popular with students, such as physics, than it is in a popular expanding area such as law, where there are many posts being advertised. Physics is hit particularly hard by the freeze on students because of the shortage of posts.

Because of this scarcity the evidence shows that when a physics job is advertised there is a flood of applicants. Manchester Polytechnic recently had 85 applicants for a lecturership in physics, all of good quality. The same applies to chemistry. The Polytechnic of Central London said it had not had a physics or chemistry post for several years because of the shortage of students.

Subjects leading to a professional qualification are in another rather scarce category. In law, graduates and polytechnics are not only competing with each other but with the profession and the higher salaries offered there. This is also true in accountancy, and branches of computing.

The problem is the same for subjects allied with architecture. The previous educational experience of both groups was not significantly different, says the university research team. Of those who remained to sit the final examination, the difference was in the same way as normal Open University students.

The developmental testing model made use of an integrated feedback system and simulated the learning conditions of the university as closely as possible. It had initiated the design of an efficient date processing system within the constraints of the university's course production.

"We estimate the cost of the developmental testing of 'Elements of Music' was about £5,250, including staff costs, which represents a very small fraction of the total cost of producing a half-credit course at the Open University (£221,000 at mid-1976 prices), the team claims.

Since this particular pilot was run in 1976 a new arts foundation course, scheduled for first presentation to students in 1978, had undergone comprehensive developmental testing this year.

At least five more teams preparing 1979 courses have since decided to implement the model next year and the Open University has now created the necessary flexibility in its production cycle to allow teams the option of developmental testing. It was far more common for the tools of educational technology to be developed and piloted so as to cause the least disturbance to the organization. This often led to compromises and the dissemination process became a separate exercise.

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By contrast, in a pure academic subject such as philosophy there is great demand. Although advertised recently what was thought to be the only lecturership in the subject this year, and there were over 100 applicants, which for philosophy was considerably high.

The most common comment from both universities and polytechnics is the high quality of the applicants compared with several years ago. Many now have first class honours degrees, PhDs and research experience. More and more tend to stay on at their own university and complete their research before looking for jobs, rather than seeking them mid-career, as was the case several years ago. And more applicants tend to have held research fellowships. The average age of an applicant therefore for a lecturership has risen to 24/25 to 28/29.

At Manchester Polytechnic, where there were 85 applicants for a physics post, Mr J. H. Appleby of the physics department said many had first class degrees, PhDs and four years' research experience and still did not make the short list because they had not the relevant industrial experience. The shortage of money at present makes it more difficult to recruit lecturers with appropriate industrial experience.

Completed or nearly completed research seems increasingly to be an essential qualification for a lecturership. Dr E. P. Rose, a geology lecturer at Bedford College, London, said that unless the post demanded a particular specialism an applicant's chances, without a PhD, were slim. There were very few job opportunities in geology apart from the universities, he said, and more people were being forced to go abroad.

The British Council confirmed this. It said there was more response to advertisements requiring little experience, such as in Finland or Norway, where often the Teaching English as a Foreign Language (TEFL) qualifications were not needed. But at the same time, for academics, academics were realizing more and more the necessity of some sort of postgraduate qualification.

Despite the proliferation of jobs in the oil-rich countries, the AUY said they had evidence of academic churning to get there. The more popular choices were Canada, Australia and New Zealand. The EEC was not high on the list because of language difficulties.

All agreed, however, that more lecturers were seeking posts abroad. Professor Edwards said that what was most depressing was that applicants with first class degrees and completed research who several years ago would have walked into a job, were being turned away. "In the time of expansion universities took people who were not necessarily top rank, and now they are rejecting people who are better than they were. A whole generation of potentially good scholars is being lost."

The problem is the same for subjects allied with architecture. The previous educational experience of both groups was not significantly different, says the university research team. Of those who remained to sit the final examination, the difference was in the same way as normal Open University students.

COURSES

University of Strathclyde Department of Electrical Engineering MSc Course in ELECTRICAL POWER ENGINEERING

Teesside Polytechnic Department of Business and Professional Studies NEW OPTION IN MARKETING

UNIVERSITY OF DUNDEE DEPARTMENT OF COMMUNITY AND OCCUPATIONAL MEDICINE MASTER OF PUBLIC HEALTH

COURSES OXFORD POLYTECHNIC BSc Civil Engineering Construction

STUDY AT HOME for a London University Award DEGREE

WORKSHEET

Now OU knows the score Sue Reid reports how music student guinea-pigs like Barbara Cordelle helped the Open University with its first course testing programme



Handwritten note in the left margin.

LETTERS TO THE EDITOR

Undergraduate drinking

Sir.—Alexander Gunn's interesting article on the problems of undergraduate drinking (*THESE*, April 22) seems to me to overlook an important reason why undergraduates get drunk regularly. This is quite simply that at the age of 18 many people are, for obvious reasons, unaccustomed to alcoholic drinks. Because of this they simply do not know when to stop.

The inexperienced drinker can pass very quickly from the stage of being reasonably capable to the stage of being totally incapable. I know this from bitter experience.

As Mr Gunn says, with advancing years one learns, so to speak, to "know one's limits". This is not necessarily due to "strength of mind" as Mr Gunn has it. As you get older your tolerance increases and you have lengthening memories of ferocious hangovers and near-fatal accidents. More important, you learn what your own capacity is and you begin to recognize when you have had enough. It may be a question of recognition rather than of wisdom.

Mr Gunn points to the dangers of alcoholism. Drinking is for adults as well as for undergraduates, a pleasant and convivial way of refreshing themselves. Only a tiny minority of those who had happy times getting drunk as undergraduates are going to become alcoholics. Alcoholics are, typically, drawn from people who "draw their sorrows" from life and who drink and the conviviality which goes with it often find that when they are unhappy drink is no refuge at all—quite the contrary, they are likely to be off their beer.

To see any of your headline to Mr Gunn's article you might have added drugs and political fanaticism as problems with which undergraduates have had to contend. If there has been a revival of drinking, particularly of "red ale", some people's mysterious mood would regard this as a healthy sign.

Yours sincerely,
I. W. CAMPBELL,
85 Eborac Street,
Southfields, London SW15.

Beating the bulge

Sir.—In your article "Projections from a Watershed" (*THESE*, April 1) you draw attention to the varying size of the population of 18-year-olds in Britain. The peak in 1982 will be succeeded by a trough in or about 1985.

Such variations of demand are of course encountered by other services and could surely be met in the same way. For example, if you go to your local grocer during the slack period you are served immediately. If you go in the rush hour you have to wait. The number of shop assistants is based on the mean flow of customers. So let us suppose that the further education system should be able to do this. It would be that there is no increase in the capacity or reduction in the proportion of the age group opting for further education. Then, by analogy with the grocer's shop, the whole of the input of 18-year-olds until 1993 can be accommodated provided that a larger proportion of them are prepared to accept a delay of one year between school and university.

The proportion will rise by 70 per cent by 1988 but would fall again to the current figure (probably not more than 30 per cent) five years later. Thus, all that is necessary is to tunnel through the bulge in an arrangement by which those who have waited a year are assured of priority at second application; and an acceptance by all that a year's delay will be the temporary norm.

Such a plan would not only be a more economical use of resources than the current system and then having to reduce the number of places. It would also ease the employment problem for graduates. There remains the problem of finding employment for some of the bulge between school and university. This may be eased by the fact that these involve are less differentiated than graduates and have lower expectations: even if they were not employed they might profit by widening their A level achievements. Certainly they would be more mature when they start further education, which could only be beneficial.

Yours faithfully,
S. L. BRAGG
Vice-Chancellor and Principal,
Brunel University.

Recurrent education

Sir.—Writing on behalf of the Association for Recurrent Education, may I congratulate you on your leader of April 15 and the attention paid to recurrent education generally in that issue?

The full page article by our president, Gerry Fowler, represents the views of the Association cogently and succinctly and it is probable that some of your readers will want to know more about our purposes and activities. The former are best represented by this extract from our constitution:

The association exists to promote discussion of and the establishment of activities within a wide variety of settings which come under the heading of recurrent education.

Recurrent education constitutes a comprehensive educational strategy including all levels of educational provision. Its essential characteristic is the distribution of educational opportunity throughout the lifespan of the individual. It allows the accumulation of periods of structured educational experience with work, leisure and retirement. It is to be regarded as an alternative to the traditional pattern of educational provision in which the great majority of formal education is experienced in the first 25 years of life.

Its acceptance will require a re-consideration of every facet of existing educational provision in that it seeks not only to review the interaction between schooling, work and leisure, but also to make more meaningful the relationship between the acquisition and the application of human knowledge. It therefore represents a new contribution to human rights in which learning is acknowledged as a personal matter and each person's claim to educational provision represents more clearly his or her preference

specialized and less well geared to this type of treatment, and for them the right kind of placement is more crucial.

In suggesting that "the time is right for the abandonment of this cost and time-consuming experiment", Mr Harrison is expressing a very personal and individual view. Many of us believe the cost and time involved to be very small compared with the tangible and intangible benefits it does make two points which many of us would agree.

The first is that a general requirement for new "business" courses to be sandwich based may create an emphasis of demand over supply for courses at business based institutions; an adequate supply of places must be ensured before such compulsory expansion of sandwich courses is pressed.

The second point I would agree is that employers' support for sandwich courses has sometimes seemed to lag behind the expressed interest in recruiting the finished product. We may need a rethink by professional bodies in conjunction with employing organizations and government bodies giving financial support to students, to ensure that opportunities for such training, where considered highly desirable by those bodies, are more freely available.

for a particular pattern of learning, work and leisure. Its goal is the learner with greater autonomy, better equipped to participate in the continuous shaping and reshaping of his or her environment and society.

As you reported in previous issues, the association was formed in 1975 and formulated a detailed policy at its first residential conference in September, 1976. Our membership is widely representative of post-compulsory education in Britain and abroad, and we welcome any person or organization interested in the evolution of the sort of educational strategy described above.

FRANK MOLYNEUX,
Hon Secretary, Association for Recurrent Education,
c/o School of Education,
University of Nottingham.

Sir.—Your editorial of April 15 was worthy of the great tradition of *The Times* leaders. *THESE* has indeed come of age!

Slowly over many years various forms of recurrent education have been creeping into the system—through traditional adult education programmes, through the Open University, through post-experience courses at business schools and management centres, through activities generated by the industrial training boards and the Training Services Agency, and through many other doors.

But it has all been happening in a haphazard way, and with the compelling need for the economic use of resources it is essential that there should now be some overall form of coordination which will recognize recurrent or continuing education as something much more than a peripheral field of post school educational endeavour.

Shirley Williams has in a very short time become shown herself to be an unflinching Secretary of State, and Mr Callaghan has given a greater fillip to education discussion than any other postwar Prime Minister. Would it not be possible now for the Government to appoint a strong commission or committee in review and make recommendations for future post-school education in the light of the various points you so eloquently make in your editorial?

A national advisory council is a first step but is not sufficient. There is formidable confusion of thought, intentions and policy about post-school education following the phenomenal growth of the last 15 years. A new review need not pull up roots, but it will help to concentrate people's mind in a way that no advisory council can possibly achieve—and we must remember that the decisions taken during the next few years will radically fashion the form of post-industrial Britain.

You rightly imply that "the role of recurrent education in the birth of social and industrial democracy may be as important as that of compulsory elementary education in the creation of political democracy in the last century". Let us make quite sure that we have a fully acceptable system of recurrent education—fully accepted by the institutions of post-school education themselves, by teachers at schools, by parents, by government and by industry.

This is too important a matter for any one of these essential groups to be left out in the cold and inimical to the system. A thorough review by a strong commission representing all parties is a compelling requisite.

Yours faithfully,
PHILIP NIND,
Director,
Foundation for Management Education,
Management House, Parker Street,
London WC2.

English at Cambridge

Sir.—Reading Colin MacCabe's article on English at Cambridge (*THESE*, April 22) prompted in my mind two interesting questions.

Having surveyed the half-century since I. A. Richards invented practical criticism and committed Cambridge to its teaching, he picks out five developments during that time that have demonstrated the aridity and sterility of Richards' approach. They are: cultural history; attention to the social situation of the text; the writing of poetry in Cambridge, inside and outside the colleges; interest in film studies; a truly interdisciplinary activity for Colin MacCabe, though for me a piece of historical research; and new light on the eighteenth century, which has illuminated "what medievalists have always known" (but cannot speak for "medievalists", but "middle-class" world).

It would be an immense pity if educationists were to take Robin Mead's "listen-in" as an OU telephone tutorial as being the essence of "SB" or "student bore", and until the tutor has had time to take the measure of the varied students before him they are suffered and the other students suffer.

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Telephone tutorials

Sir.—I was amused by the article published on the subject of telephone tutorials in the Open University (*THESE*, April 8). Amused because the impressions given by Robin Mead that the whole thing is a "bit of a gimmick" may put the wrong light on a very serious project.

The scheme to introduce such a teaching technique to help handicapped students who are unable to attend face-to-face tutorials, was piloted in the London Region under the aegis of Ilen Turak who still has to fight considerable opposition from his fellow academics. The whole idea of joining some of the students, with a tutor, to a Centre Call, was and is a brilliant one. There are, of course, many ways and those of us who have been in on these calls, know only too well that Robin Mead's scepticism is the same as our own—initially at least.

Some people are better at using the technique of telephone teaching, than others are. And some people are better at listening to using telephone tutorials, than others are. There is no feeling in body-language terms—and we have to learn on either side of the educational wire, to listen for cues as to whether one has the attention of either the tutor or the students, or whether they have drifted away or gone to sleep, or whatever.

But that it is a potentially successful form of teaching is being manifest more and more each year, as more tutors become trained in this different and challenging skill.

Recently there were some fears that the telephone tutorials in the London Region would not be able to take place—despite the fact that the scheme was being extended to embrace the Open University as a whole. Thanks to the support of some handicapped students and some dedicated tutors, there are now 26 courses being run for the benefit of some 200 students.

Robin Mead's article was, as I said, very amusing. But one point that I would like to make is that I have attended a number of these calls. The system is on my own intermittently disabled way through to my BA(Open) just achieved. Initially each group of students meeting a new tutor, behaved in much the same way as Mead's description of the telephone tutorial. There is very often an "SB" or "student bore", and until the tutor has had time to take the measure of the varied students before him they are suffered and the other students suffer.

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Ian Bradley reports on a rare growth area in the world of learning



Amid the general atmosphere of contraction and redundancy, at least one sector of further education is undergoing a rapid expansion at present: the training of trade union officials and members. Last month the Prime Minister opened the most recent manifestation of this boom, a new residential training and conference centre for the National Union of Railwaysmen, housed in a Sussex mansion which cost £123,000 to buy and £250,000 to convert into lecture rooms and accommodation for 28 students.

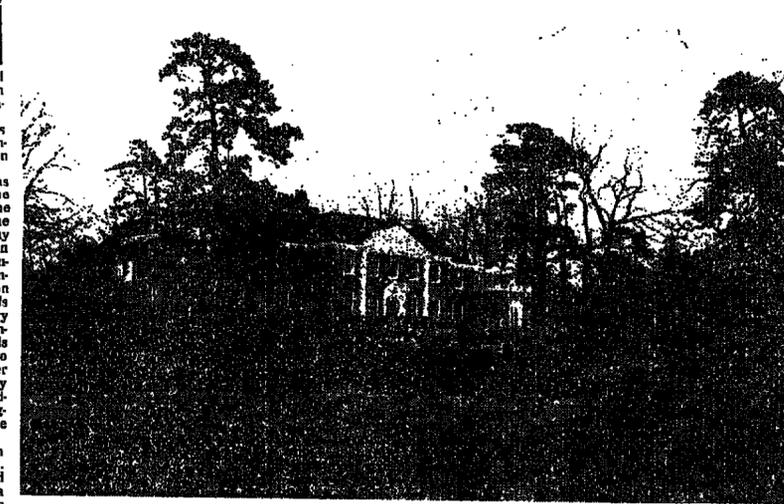
The NUR is the latest union to join the fast growing trend of setting up residential educational centres. One of the first trade union colleges was set up in Esher in 1952 by the Electricians and Plumbers Trade Union, which is now extending its second college at Cudham, Kent, opening a further 80 residential places. In 1964 the General and Municipal Workers' Union opened Woodstock College, at Surbiton, with accommodation for 40 students. In September, 1975 it took over from Shell a large house at Hale, near Manchester, which it has converted into a training centre with 38 residential places.

Last summer the Association of Scientific, Technical and Managerial Staff opened Whitehall College at Bishop's Stortford, in a house bought from the Gliby gift family. ASTMS has already spent £250,000 on converting it, and is about to spend a further £150,000 on a new teaching block, a simultaneous translation unit, and rooms for a further 50 students.

In September the Transport and General Workers' Union opened a huge conference and training centre in Epsbourne which can accommodate 280 students and is equipped with the latest audio-visual teaching aids.

The standards of comfort at these new trade union colleges and conference centres are high. The NUR's Sussex mansion, for example, has a heated swimming pool, a tennis court, and 43 acres of grounds. The system might suggest that the main reason for trade unions setting up such training centres is to provide the luxurious

Where British trade unionists go to learn their lessons



The new NUR conference centre: holds 28 comfortably

surroundings to which members had now become accustomed and which they do not find in more conventional education establishments.

But there are more serious reasons for the considerable expansion in trade union education in the last few years. A large amount of legislation has been passed on labour issues. The Employment Protection Act, the Health and Safety at Work Act, the Equal Opportunities and Equal Pay Act, and the recent legislation establishing union trustees on pension funds, have all greatly increased the range of subjects on which both full-time union officials and shop stewards and ordinary workers need to be expertly informed. Partly as a result of this mass of new laws, and partly to bring Britain in line with other EEC countries, legislation is likely before the end of this year providing for workers to be allowed regular time off with pay for trade union education.

Most of the courses at trade union training centres last for one week. Some are highly specialized and concentrate on the problems of a particular industry or firm. The ETTU, for example, has been running a series of courses on the nationalization of the aerospace industry. Others are more general. A typical general one-week course at the ASTMS Whitehall College involves lectures on union history and administration, new legislation, equal opportunities, time off and maternity leave, health and safety, pensions, job security and unfair dismissal, industrial democracy, collective bargaining techniques, and inflation and wage restraint.

The TGWU has three basic courses: union structure, industrial democracy, and unions and the law. No doubt with a view to Phase Three, it is introducing a new course this month on trade unions and the economy.

The growing interest in worker participation in management has also caused the TUC to set up a trade union education department, with outside lecturers being brought in for specialist topics.

The Bullock committee recommended that the training of employee representatives on company boards should be undertaken by the TUC and individual unions in conjunction with the education service. It commended the system now operating in Sweden, where new employee representatives are given three or four weeks' residential training at one of the trade union colleges during their first two years on company boards.

in the public sector provided about 1,150 courses in trade union studies for 16,500 students.

With the likely advent of industrial democracy in many British firms within the next few years, trade union education is bound to continue expanding, and the number and role of the individual union colleges and training centres will increase.

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Trade unionists feel that a substantial part of the cost of trade union education should be borne by the Government. They point out that while about £20m of public money is spent on management education every year, excluding universities and independent management institutions, virtually nothing is spent on educating trade unionists. Last year, for the first time, the Department of Education made a £400,000 grant to the TUC specifically for trade union education, but it was only a fraction of the amount made available by other European governments.

Even a fairly modest grant of £3m would, according to the Bullock committee's calculation, provide four-week residential courses for 6,000 people, the number which it estimated would need to be trained initially as worker directors.

The Swedish government provides an annual grant of £51m for trade union education. Perhaps as part of the price for agreeing to another year of wage restraint, the British trade unions will exact from the Government a regular grant for educational purposes.

Tim Albert examines recommendations in a new report from the World University Service

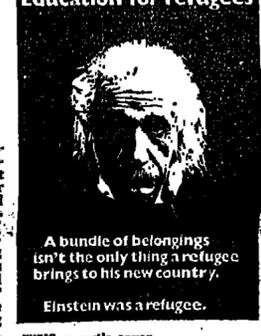
Why we stand to gain by making refugees feel at home

A general reception centre and a central fund for scholarships and fellowships are among the recommendations put forward for refugees by the World University Service.

The report goes on to discuss the problems caused by the existing central government arrangements, before dealing with those caused by the lack of educational provision. It comments that it would be unfair to say that the arrangements made for the Czechoslovak, Ugandan, Asian, Chilean and Cypriot refugees reflected an "inconsistent government policy".

"Clearly there was no government policy at all", it says, "and arrangements were made by best efforts of the circumstances. Pressure of time, the absence of guidelines on the most suitable arrangements for the refugees, and lack of co-ordination led to unsatisfactory solutions."

Education for refugees



A bundle of belongings isn't the only thing a refugee brings to his new country. Einstein was a refugee.

WUS report's cover

to offer refuge to those who suffer persecution, and should set up an initial basic target of 2,000 refugee families a year.

Requests for asylum should be accepted or rejected within three months, and there would be special procedures set up to deal with urgent applications. Those who seek asylum but who are already in the country should get a special "interim" status.

A reception centre with a full-time core staff should be set up by the Government, perhaps in a former educational establishment. Some tuition in English should be available there, but in addition provision should be made to provide up to six months' intensive training in the language.

There should also be made available government courses for re-training refugees, and special counselling on employment, housing, retraining, education and legal status.

Education for Refugees, World University Service (UK), 260 Highgate Road, London N15 4AJ.



MICHAEL BINYON reports from Washington

Scientists bid to aid political prisoners

The National Academy of Sciences has launched a campaign for the release of eight scientists in Argentina, Uruguay and the Soviet Union who have been imprisoned for political reasons.

Carnegie doubts necessity for separate education division

Argument over a separate Department of Education has not died down although it is clear that the present Department of Health, Education and Welfare will remain intact for some time yet.

Strike college rector Dr Larkin Korwin, Rector of Laval University in Quebec, which went on strike for the whole of the autumn term, was soundly beaten when he stood for reelection for another five years.

Public purse has long strings

Harvard, Yale, Stanford, MIT, Princeton, Cornell, Columbia, the University of Chicago—the elite colleges of America's most famous universities conjure up an image of independence, wealth, antiquity and scholarship. But the image is not quite accurate.



Mitchell Tower, University of Chicago

McGill concern at French language edict

The announcement that from now on French is to be the only official language of Quebec is deeply worrying to McGill University in Montreal, one of the oldest and most prestigious English-speaking universities in Canada.

Pressure stepped up for shorter study periods

The universities, already in recalcitrant mood because they are having to whittle down their programmes in compliance with the 1975 University Re-Structuring Act, are now being urged to re-think the programme yet again in the long term.

Legal challenge to reforms

The future of the bitterly contested reform in third and fourth-year university courses is threatened by an appeal to the Council d'Etat, France's highest administrative court.

Union strike threat to stop sackings

The Irish Federation of University Teachers is to take industrial action to try to prevent the dismissal of two of its members who are expected to be issued at the end of June.

Black medical school nears completion

South Africa's first Black medical school and an audio-visual 'do-it-yourself' university are expected to be in operation next year.

Fresh student violence clouds reasons for discontent

The violent elements in the Italian student rebellion appear to be losing support after the shooting of two policemen during clashes outside Rome University.

Comecon set up institute for management

The Comecon Institute of Management has finally been born in Moscow (THESE, July 25, 1975).

Students cool on boycott call

Students at universities and colleges of advanced education largely ignored an attempted one-day boycott of classes last week.

Multi-lingual law

A four-language dictionary of legal terms used in England, Scotland, Denmark, Norway and Sweden has been published by Universitetsforlaget, Oslo.



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LETTERS TO THE EDITOR

The role of mathematics

Rhetoric has never been comfortable as one of the three Rs, and dropping the "a" to fit into a neat idiom merely reinforces the discomfort. Reading and writing have been considered as desirable skills by virtually all civilised societies and are indeed often identified with cultural activities. Mathematics, in contrast, has remained an optional extra; a failure to read or write can be a source of acute embarrassment but a failure to achieve mathematics O level can be faulted with pride.

The ambiguous role of mathematics in our culture is reflected in confusion over its status in the educational curriculum. For at this level mathematics is faced with two separate—and often competing—demands. On the one hand, there is the broad demand for the development of a basic level of mathematical literacy in the population, training the individual in those mathematical skills which he or she is likely to encounter in ordinary life. On the other hand, there is the growing demand for the development of a range of mathematical techniques in a wide range of productive activities.

In the abstract one might be considered merely as an extension of the other, and a basic grounding in mathematical skills as the foothills which need to be crossed before scaling the more difficult heights. In practice, limited resources and different objectives can lead to conflict.

Much of the disenchantment with the new mathematics taught in schools has come from teachers, pupils or parents, but from employers whose needs are geared to more conventional mathematical skills. Similarly the current shortage of mathematics teachers in schools is partly the result of a period in which the limited output of university mathematics graduates were eagerly snapped up by industry and research institutions—often into administrative or managerial positions and teaching offered few temptations.

Thus unlike subjects such as English and history—and even pure science—in which the educational system is able to maintain standards by recycling the greatest talent, the field of mathematics to the world outside has created

an instability whose result has been a falling spiral in the standards of both teachers and taught.

The structural dynamics of this problem make it difficult to identify a single scapegoat. University departments are not to be blamed for lowering entrance requirements if the alternative is no students; schools are not to be blamed for employing barely qualified mathematics teachers if the alternative is no mathematics teaching; and those who claim that other forms of literacy are as important—if not more so—than purely mathematical skills have a strong case to defend.

All of these result in scepticism as to whether making mathematics a priority subject in teacher training—as has been demanded in recent weeks by a number of prominent mathematicians, including Dr Edwin Kerr and Dame Kathleen Ollerenshaw—will of itself provide a magic panacea in anything but the alternative is no mathematics teaching; and those who claim that other forms of literacy are as important—if not more so—than purely mathematical skills have a strong case to defend.

It could, for example, be questioned whether the pursuit of numerical data and of mathematically based forms of analysis has not begun to turn into a self-reproducing fetish—as illustrated, for example, by the fantasies of futurologists such as Herman Kahn (page 18)—which not only obscures the valuable mathematical talents but also serves to mystify such talent in a way which can only be socially harmful. Certainly there are areas of economics and management science where the introduction of mathematics initially at a professional level has subsequently led to the creation of new academic fields bearing very little relationship to the real world.

Certainly improving the quality of mathematics teaching is an important goal. But at the same time the valuable mathematical talents also serve to mystify such talent in a way which can only be socially harmful. Certainly there are areas of economics and management science where the introduction of mathematics initially at a professional level has subsequently led to the creation of new academic fields bearing very little relationship to the real world.

College roars and whispers

The protests against the proposals for reorganization of the Association of Colleges in England are a whisper compared with the roar which has greeted the Scottish equivalent. Already these proposals have been defeated in the Scottish Grand Committee and in the Scottish Parliament in the House of Commons and there are threats of a vote of no confidence if Mr Bruce Millan, secretary of state for Scotland, does not come up with some substantial changes when he announces the final plan shortly.

One reason is undoubtedly the new sensitivity of MPs of all parties to what happens north of the border. Proposals have come up a time when Scottish devolution is very important. But there are other reasons too. The strength of local feeling in Scotland is greater, it appears. Whole communities have joined the protests and no major section of Scottish society has failed to register its objection. Only a few places in England have colleges which have attracted such fierce local loyalties.

Another factor must be the vigour and cohesiveness of the Association of Lecturers in Colleges of Education in Scotland, which has pursued Mr Millan with the threat of an industrial tribunal if costs for the reorganization are not produced. The association's great strength is that it is comparative. It is able to compare its members' conditions with those of their counterparts in Scotland.

new members of the National Association of Teachers in Further and Higher Education, which also represents polytechnic and further education lecturers. The work of ALCES in securing the support of Scottish trade unionists and MPs has been important.

Are Mr Millan's proposals as bad as the chorus of protests would suggest? In Scotland, as in England, the birthrate is falling and something must be done to stop the over-production of teachers. The opponents of the Government scheme argue that the closure of two colleges and the merger of two more is not the way to go about it. Their suggestion that not all the cuts are needed has forced.

In England many threatened colleges are basing their cases on the gap that will be left in income provision if they are closed. But even if none escape the axe, the college map of England will look crowded compared with that of Scotland. Besides this, all the technic colleges are basically mono-technic and there is concern to propose that at least some diversification is possible, so that the country's higher education provisions should not be so drastically reduced.

Some of the proposals clearly need revision. Should an Edinburgh physical education college be asked to merge with a new Dundee college which has turned out to be an embarrassing large but which has no special physical education provision? The Scottish Education Department's members, including Mr Millan, think a merger is a

Bias at the OU

Sir,—I am glad that Mr Macdonald-Ross agrees that some (unspecified) Open University courses bear all the signs of Marxist bias (THES April 29). I am only sorry that his letter which was obviously destined for the Daily Express inadvertently found its way into your columns.

He does not appear to realize that Marxist ideas, rightly or wrongly, happily or unhappily, are crucial in deciding the destinies of about half the people who live on this planet. It would therefore be very odd indeed if these ideas were ignored by the Open or any other university. It would also be odd if in universities there were not protagonists for all current points of view.

Let us look clearly at the question of bias. To some people bias means mere mention but to most of us it means giving undue prominence or unfair advantage. When Gerry Fowler left the Open University to become its first vice-chancellor, I took over as course team chairman of E221 "Decision-making in British education systems", later I became course team chairman of E321 "Management in education". Neither of these courses contained any Marxist or feminist ideas expressed within them.

There were in both courses very occasional departures from conventional wisdom (for example, E221 unit 16 "Recurrent education", E321 Unit 16 "Resource allocation") but by and large the ideas which were dominant in higher education in our society prevailed. Noddy complained "We were not accused of mandarin bias, relentless defence of the status quo, or even being in the pay of the Conservative Central Office let alone the CIA."

There is one examines the courses in the Open University and finds that the vast majority are of a highly conventional nature in regards to ideas. This one would expect as one would also trust that in a few courses alternative points of view would be strongly expressed. That these points of view should exclude an analysis and explanation of social ideas which govern half the population of the world is plain daft.

There is a way in which this dispute, unlike so many others, may be settled once and for all. I suggest, under the auspices of the THES, a "weigh in". A suitable panel (maybe chair: Baroness Wootton; members: Rhodes Boyson, Max Beloff, Peter Townsend, Bill Taylor, etc.) each representing a party could vote on each Open University unit for bias and then they could be weighed. Eric Robinson and Antony Flew could be the check weighmen and as people say at the ball, about the way we would, by a process of aggregation, arrive at the truth.

Let us now examine the second sentence of Mr Macdonald-Ross's absurd missive in which he suggests that ideas which are rejected by the ballot box should not be studied in universities. My goodness it would have been even more difficult for Columbus, Copernicus, Galileo, Kepler, Darwin, Pasteur, Faraday, Edison, Heisenberg, Godel, Einstein to name but a lot, and their ilk if they were compelled to submit their hypotheses to the populace before developing them.

Mr Macdonald-Ross has a confidence in the governing bodies of universities that is not shared by many of us. He suggests that the "ballot box" of higher education should start a similar inquiry into the possible bias towards the Christian religion in many, if not all, faculties and departments of divinity or theology.

My experience both as a student and as a teacher in such faculties have been in any way adversely affected by the admittedly deplorable attempts of a minority of evangelistic academics to mingle indoctrination with education.

Yours faithfully,
GORDON MILLINGTON,
Grange Road,
Guildford, Surrey

Sir,—Amid the recent welter of pontification on the questions of political bias and academic standards in the Open University's courses, little has been written from the viewpoint of the producers' consumer. May I therefore, as a student of the university from its inception, now registered with it at my own expense for postgraduate research, offer a few observations on the current controversy?

I think it is beyond question that a minority of course-team members in three non-technical faculties have on occasion allowed their personal enthusiasms for aspects of Marxist and feminist thinking to bias unwarrantably their presentation of socially issues, and it is noteworthy how rapidly the university is now reacting to correct these imbalances.

Significantly, the matter was first raised quite recently in the university's own newspaper, one of the many feedback opportunities which it has always been at pains to provide, for Open University students and part-time staff have always been constantly requested to criticize the content and presentation of courses.

Members of the academic pantheon may not be well acquainted with the students, but the latter have lost no opportunities of assessing their mentors on television and radio, in summer schools and weekend seminars, and also from their publications. We have long known who is red and who is dead, making due allowance for such of the latter as have lost no opportunities of assessing their mentors on television and radio, in summer schools and weekend seminars, and also from their publications.

It should not, however, be assumed that a known bias must necessarily invalidate an academic's work. Arnold Kettle's literary perceptions have long been widely valued in student circles, despite the propensity of anti-Marxist attitudes to bring him rather readily to the boil. There is, though, a plethora of minor ethnometaphorical luminaries in the faculty of education upon whom practising teachers tend to look less kindly.

Academic critics of Open University course material sometimes seem to evaluate this partly in terms of its putative impact upon their own, mainly teenage, students and to forget that the Open University has a different, adult constituency, mentally more robust and highly resistant to anything savouring of indoctrination.

It therefore seems doubtful, to say the least, whether the academic standards of the Open University have been in any way adversely affected by the admittedly deplorable attempts of a minority of evangelistic academics to mingle indoctrination with education.

Yours faithfully,
GORDON MILLINGTON,
Grange Road,
Guildford, Surrey

Sir,—In your editorial "Academic Standards at OU" (THES, April 22) you welcome the decision of the Open University Senate to institute an inquiry into the alleged bias of some of its courses. I would like to ask whether you and Mrs Caroline Cox and Professor Julius Gould would publicly support a call, I am prepared to make that the governing bodies of universities in England and Wales should start a similar inquiry into the possible bias towards the Christian religion in many, if not all, faculties and departments of divinity or theology.

My experience both as a student and as a teacher in such faculties have been in any way adversely affected by the admittedly deplorable attempts of a minority of evangelistic academics to mingle indoctrination with education.

Yours sincerely,
JAMES THROWER,
Department of religious studies,
Aberdeen University.

Future student numbers

Sir,—Your readers could be forgiven for being confused by the plethora of apparently contradictory forecasts of the likely size of higher education, and particularly the university sector, in the future. It is not possible in the space of a few paragraphs to set out the detailed arguments for the various points of view but perhaps as the Conference of University Administrators' group in the field I may be permitted to make a few general comments based on what has appeared in the THES.

You were kind enough to provide considerable coverage to the report of the group's interim report (THES April 1). We were careful not to make a forecast of future student numbers in the university sector, but four possible alternative projections up to 1993. In general, however, we favoured a steady increase in numbers up to 1985 (low projection) and a subsequent decline.

We felt that the lower projection was probably more realistic. The only way the decline could be arrested would be for government to permit a very drastic reduction in student numbers in secondary education which politically would be unlikely.

In the following week we reported an address to the CUE Research and Advisory Committee by Professor Bill Gossop, who suggested that in the 2000 higher education would probably be about the same size as now. This is not a contentious claim which I would dissent.

The CUA group did not go so far into uncharted territory of the future as the Association of University Teachers (THES April 22) which suggests a growth to 364,000 students in universities by 1984-85 with some growth off by 1987-88. The methods employed to reach these figures are not set out in detail in the edited text which you published but the forecast of 330,000 in 1981-82 is higher than the figure of approximately 295,000 (5 per cent growth between 1977-78 and 1980-81) only assumed in 1977-78 figure of about 280,000 recently indicated by the Government for 1980-81.

The AUT forecasts are based on complete isolation from any other, neither knowing that another group was being set up to study the same issues. It is interesting that the forecast of these two exercises is the same. The report to review annually the situation on student numbers.

Yours faithfully,
M. L. SHATTOCK,
Chairman,
CUA group on forecasting and university expansion,
Warwick University.

Sir,—Many of my friends and acquaintances, doctors, nurses and administrators, are suffering from the three main local or hereditary ailments of the reorganized Health Service. Professor John Jacques, rising phoenix-like from his past ashes, now has a message for our industrial ills (THES, April 22).

Yours faithfully,
J. L. BIRLL,
Psychiatry,
University of London,
Denmark Hill,
London.

Is Brookings the right model for Britain?

Would a transplant of the Brookings Institution model to Britain "take"? What is the Brookings model?

Brookings has three essential elements. It deals with economic and social policy; it analyses issues of governmental organization, and it examines military and foreign policies. It contracts seminars, usually business leaders, union officials and government bureaucrats. A fairly permanent, regular full-time staff is supplemented by a group of usually younger scholars who come for short stays.

It is dominated by economists, although obviously political scientists are important in the last two groups. It is an independent research organization. It also served in its beginning days as a PhD awarding institution; it has a basic endowment, seeks foundation funds, and also has government contracts.

What are the Brookings achievements? In line with my concern with economic and social policy, these seem to be mainly three, but others obviously would recognize quite different successes.

The one that perhaps received the most attention consists of the annual budget analyses that Brookings produced under Schultz and Rivlin. They outlined alternative ways of pursuing national goals and were an effort to bring together data in ways that the Office of Budget and Management had not done. To some extent these served as alternative budgets (for liberal Democrats) which had both broad "macro" concerns as well as more specifically "micro" ones.

A second accomplishment, reflected in the budget analyses but broader, were formulations of alternative defence policy postures, to use the argot of the strategy industry. Here the issue was how to get a bigger bang for the buck, or to reduce military expenditures without encouraging the wrath of the right opposition because military strength appeared to be waning.

And even before the disagreements over the Vietnam War, the 20-year Cold War consensus was breaking up. In general, the age of the economist had come to Washington, while previously lawyers had dominated in many federal departments, and in the case of the State Department, what was necessary for effective military strength was very much needed, and supplied to some extent by Brookings. With important exceptions, a fairly acceptable, i.e. non-partisan, consensus on military expenditures was provided.

A third important accomplishment was the tax studies pursued by Joseph Pechman. He had long tried to analyze, and later was successful in persuading the House of Representatives, and the Senate, to pass a major tax reform, most of which were not adopted, but are treated as possible legislative proposals, as they are again in the Carter administration.

Those making the Brookings studies are very shrewd people who have had extensive government experience; most have impressive professional credentials; they are people of practical sense, and they have generally had a critical view of Nixonian policies.

To a major extent, many of the Brookings staff of this halcyon period had an ideology. This Brookings perspective is recognized in the United States, but there seems little awareness of it in the United Kingdom. They were liberal, in the American New Deal sense of being Keynesian, growth and social policy oriented.

They are marked also by an effort to regard themselves and to be regarded as hard-headed and rational people. They had a definite point of view about policies seeking growth and equity. They were concerned with fairness, that people in similar situations should not be treated dissimilarly, and they did pay some attention to policy-though they saw it as strongly as would have liked.

Next month the Social Science Research Council is to consider a report on the development of policy studies, which may include proposals for a new institute. Michael Miller discusses the achievement of the Brookings Institution

members of Congress, and the permanent civil service. This is the level of assistant and deputy assistant secretaries who head divisions of a department.

While they are frequently chosen for their political connexions, there is a fair sprinkling of what political scientist Robert Dahl has called "technopolis", experts with political sensibilities. It is this role which has been assumed by many Brookings staff, in and out of government.

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ment contract and telling the agency how to do a particular programme better. Members of the staff—initially Arthur Okun, former head of Johnson's Council of Economic Advisors—do issue statements on short-term cyclical trends and desirable governmental policy changes.

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issues of value and choice are concerned, the so-called rational devices are severely limited.

As William Gorham, who was brought in by President Johnson to organize the mammoth HEW agency into a more national state, and now heads the Urban Institute, wrote in an important article on the knife that cuts the public pie, the difficulty was making choices, rather than that we are dealing with incommensurables. How does one choose between a youth programme or a programme to benefit the aged? That is a question of values rather than of economic calculus.

Where competing values are involved, economic criteria can help one make the choice. One should not look towards a British Brookings as rationally making cuts in the budget, but as possibly pointing up the edge of the cliff, rather than being the one who jumps off it. That would help thinking about the issue, but certainly would not depoliticize the issue nor provide a "scientific" basis for making the cuts. The issue would still be political and ideological.

A Whitehall posture might be beneficial for academics. The dangers are that they might just take over the ideology of the institution they are working in, or would merely impose their traditional expertise on whatever they are doing in the immediate circumstances.

Obviously, the assumption is that some contact with the outside will make people aware that there are immediate circumstances which have to be considered in thinking both theoretically and analytically. It would be important, rather than having a broad structure which does not see down to the operating level.

There might be some projects which are done jointly by staff at different institutes, joint meetings of the institutes and the like. Funding procedures should provide an incentive for joint work, rather than having a broad structure which does not see down to the operating level.

Staffing problems

"With a wholly new institute or an 'institute of institutes', the crucial question will be the staff. We are accustomed to a considerable population in the United Kingdom, but with a very narrow group of social scientists—not just economists. Are there enough good people available? Can they be devoted to joint work, rather than more specific inquiries is needed than now exists.

It is important to have some people who have a passion for an idea, who are not only technicians. For example, Charles Schultz has been influential in emphasizing the importance of providing incentives for desired goals rather than continuing policies which frequently produce disincentives. He obviously has a passion for this idea and as a result is very convincing about it.

Technique is insufficient. How to develop passion and precision, sensitivity and rigour, a concern with the concrete in theory and the theory in the concrete, will be very important. Where Brookings has been deficient, and a similar situation is likely to weaken other policy-oriented institutions, is in developing theory out of its practical experience. This should be a concern of an institute in the United Kingdom.

I do not argue against a British Brookings as such, do argue against having unscrutinized operations of what such an organization can do and for the need to have an awareness of the ideology behind Brookings and its possible British counterpart. Analogies are always treacherous; one cannot just take the Brookings model and transfer it to the United Kingdom.

Shaping of thinking about policy issues which are approaching the front burner rather than concentrating on the development of a very specific policy for a very narrow or immediately current issue. Perhaps a third of new policy research expenditures should be on immediate issues (including cyclical policy analysis and evaluation), for without a fairly immediate payoff any research agency will incur great resentment. It is also good for a research agency to have experience with immediate issues.

More than 10 per cent might be devoted to long-term activities, where the objective should be to discern the likely trends and consequences of current activities and to broaden public discussion of alternative lines of development rather than the frequently specious and useless "long-term planning" that occurs. A major part of energy should be devoted to middle-term activities.

The growth in public policy analysis requires a great growth in data in order to make effective public policy analyses, it will be important to collect much more detailed data on a whole variety of subjects than now occurs. It will not be useful only to fund researchers unless there is an enrichment of government production of data.

In the opposite direction, a group like the Diamond Commission on the distribution of income and wealth, which is producing very interesting information, should have a policy orientation, broadening the discussion of distributive possibilities.

If an "institute of institutes" is the organizational form, then coordination at the top among the varied London institutions should be less emphasized in favour of increasing the interaction among the staffs of these institutes.

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The author is professor of social and economic geography at Boston University.

BOOKS

A social science fiction

The Next 200 Years by Herman Kahn, William Brown and Leon Martel. Associated Business Programmes, £5.95

If there is one thing that convinces me that, after all, the end of the world is nigh, it is not the predictions of futurologists but the gullibility with which large, and often important, sections of the public swallow their pronouncements. The arrival in Britain of the great Professor Herman Kahn was greeted by a special "Profile" in The Times, and even induced a number of sheaf, hard-headed, calculating businessmen of the kind on whom — so they tell us — Britain's revival depends, to pay out £60,000 each for the privilege of being able to sit at his feet and absorb his message. And there is no doubt that his reputation as a great intellect (pace The Times's "Profile") and as a clairvoyant will not be in the least tarnished by his latest book in which, in addition to its basic weaknesses, it contains beautiful examples of stoniness, ignorance and downright mistakes of an elementary kind.

One of the most hilarious is where he refers to me as having stated that "civilization has failed because his (i.e. my) uncle forgot to invent 'Beckermonium'". Here, in the space of one line of print, he manages to make four outright mistakes.

First, I did not say that civilization has failed; quite the opposite. Second, I did not say that anybody "forgot" to invent the metal Beckermonium. Can one "forget" to invent things? Are people going around making excuses for themselves by saying "Oh, bother! I forgot to invent the telephone this morning but completely forgot about it". Third, I never mentioned my uncle at all; it was my grandfather that I had referred to. It is perfectly true that my uncle also failed to invent Beckermonium; so did my aunt and so did the whole family for that matter. They were not a very inventive family. But they were not particularly absent-minded as far as I know, and not one of them — let alone the whole family — "forgot" to invent anything. Finally, I never mentioned "inventing" in the first place. I used the term "discover", and inventing and discovering are quite different activities.

Now you may say "why all this bother about mistakes which have no bearing on the argument?". It is true that they have no direct bearing on the argument, but why should one trust Kahn and his colleagues to be able to succeed in the superhuman task of predicting the future when they cannot even get simple things right like accurately reporting one line of what I have written?

And it is not as if this is an isolated example. Another example, which illustrates a different facet of their work, namely an attempt to look for more erudite than they really are, is the reference (page 50) to the tendency towards diminishing returns in agriculture which, they say, is known as "the Ricardo effect". Well, it may be known as that to Herman Kahn and his colleagues, but not to anybody else. In the economics profession (where the term originated) the "Ricardo effect" means the alleged tendency of a rise in wages to lead to more capital-intensive methods of production.

Another error — and one that damages one's faith in their ability even to get their sums right — is a simple arithmetical mistake in the central projections that are given in the book. The authors state (page 7) that their central projections for the world in 200 years time is that population will be 15 billion, per capita output will be \$20,000, and so total world output will be \$300 trillion. They then disparagingly add that their population estimate is "give or take a factor of two" which does not sound much but what they mean by this is that you could divide their projection by two or multiply it by two, which gives a range of four to one. And their projection of per capita output is, they say, give or take a factor of two. If you take the total world output projection is, they say, give or take a factor of five (implying a range of 25 to one). But they have got the arithmetic wrong (at least in the absence of some reason why their model rules out the following combination). For applying their "give or take" factor to per capita output, gives a range of from \$6,666 per head to \$60,000 per head, which, if combined with their upper and lower limits for population, gives a range for total world output of from \$50 trillion to \$1,800 trillion and not from \$60 trillion to \$1,500 trillion as is implied in their statement that their total world output projections of \$300 trillion is "give or take" a factor of five.

In short, the top of the world output range is 36 times as great as the bottom of the range! Even had their arithmetic been correct,



Professor Herman Kahn — whizzkid and Old Testament prophet?

their own range of 25 to one is enough to make one ask what is the possible point of such projections? In other words, even had the study been produced by authors who seemed more efficient at avoiding simple errors, of what possible interest is it to know that world output in 200 years' time might be \$60 trillion, but then, again, it might be 25 times as great?

The most honest justification for futurology is, presumably, that mankind has always been fascinated by the notion of seeing into the future. Claims that this can be done, therefore, pander to a public need; they

feed the public's desire to believe that we are somehow liberated from the constraints of time. In primitive societies this public need for forecasts was provided by witch-doctors, and later on by astrologists (who still do a good trade I believe).

But, in the same way that everything has become computerized, so the long-term prediction business inevitably became dominated by those who can best present an image of being a mixture of ex-Rand corporation or MIT, whizzkid and Old Testament prophet. Nevertheless, predictions to which such enormous

ranges of error are attached are hardly to be expected to satisfy the widespread desire for the illusion that the future can be forecast.

And what else does the book and its associates have to offer? It contains a firm and up-to-date statement of the "limits to growth" doctrine. But this is nothing new. It had been provided years ago and has required the assistance of a whole research institute such as the Hudson Institute.

It also contains some observations on the various social problems to which society — at least in the more advanced countries — is addressed. And although these are dressed up to look like predictions of future trends, in reality they are merely new ways of painting the picture of the present rather than imaginative insights into the future. Genuinely science-fictional ideas concerning the possible structure of society in the future than any of the whizzkid's there any concrete illustration of the way that the sort of projections made would help us to solve any of our existing social problems.

Yet the claim that the futurists make for their activities, precisely that it would have an influence on current decisions otherwise who cares what our output would be like in 200 years' time? Now, suppose that we did come up with some predictions, say, the problem of violence, or the Middle East conflict, or industrial relations, or anybody believe that the solution would have to be modified if suddenly rushed into the next calculations and that the total world output was, after all, between \$70 trillion and \$2,000 trillion?

Kahn has also defended futurology on the grounds that people may be so far from their associates, but for the public at large it might be more fun if he had previously been some demagogue predicting reasonably accurately what the world was going to be like next year, or in 10 years' time. I suspect that a number of science-fiction writers, including those responsible for Dr Who and Star Trek, provide much more of an unpretentious, useful service than futurists. Although futurists have provided glimpses of a future that contain far more than the society of today.

Willfred Beckerman

The basis of the new biology

The Life Science, Current Ideas of Biology by P. H. and J. S. Medawar. Wildwood House, £4.95 ISBN 0 7045 0243 7

The biological revolution of the past 25 years may have considerably more impact on the human race than the more dramatic discovery and application of atomic energy. Yet, few non-scientists have more than a glimmering of what it is about and popular ideas are distorted by misconceptions. It is all too vital that as many as possible understand the basis of the new biology and its possible implications for all of us. This little collection of very short articles on some of its more important aspects should help.

Peter Medawar does not write a great deal. He prefers short essays, series of lectures and reviews rather than monographs in depth, textbooks or heavy authoritarian compendia. But nearly everything he does write sparkles with vigour and penetrating grasp of essentials; and it is expressed with brilliant clarity in the minimum of words. This book is a collaboration with his wife, Joan.

with much practical experience in some of the problems that face human beings in a biological context.

As they explain in the foreword this "is in no sense a textbook... and some of its content is too advanced for beginners". The essays have, indeed, been written without any clear intention of producing a complete book. They constitute a series of isolated articles on a wide range of subjects, sometimes overlapping in content, rather uneven in depth and with too many gaps to make a whole. Yet they cover a fair proportion of the subject, especially in relation to practical human problems such as old age, heritable disease, population control, social evolution, cancer, etc and provide a good introduction for the uninitiated because the chapters dealing with the basic elements (i.e. evolution, genetics, development, etc., with their molecular foundations) do not demand pre-knowledge of the field and are simply and clearly written. There is an excellent glossary of the relatively few specialized terms used. Some of the chapters, such as those on eugenics, immunology and cancer, are outstanding. Others, on broader subjects, are very weakly

and molecular biology seem, perhaps inevitably, rather unbalanced and superficial, whereas those such as "Natural Selection", "Demography", "Cells and Tissues" and "Reducibility and Emergence" may be rather difficult for the inexperienced reader.

There are a few oddities. It is surely confusing (with reference to the different types of tumour) to explain that "yours" often the plain suffix "oma" is used to distinguish a benign as opposed to a malignant growth" since this is only true in a very limited sense and follows a sentence or two after references to gliomas, carcinomas and sarcomas, some of which are the most malignant cancers of all. And why, in the article on "Circulatory Systems" do they say that "Blood is a yellowish fluid" suspect nearly all scientists (and I suspect nearly all scientists) believe, oddly enough, that blood is red. It is blood plasma the liquid without the red and white corpuscles) that is yellowish. Or is there a trick somewhere?

The description of bacterial "training or adaptation" (page 87) as being due only to natural selection of spontaneous genetic variants is also rather misleading because no reference is made in the type of adaptation that is due to switching on, by a specific environmental stimulus, of the full expression of a particular gene which normally is silent, or very weakly

expressed. This is much more of a pity because the phenomenon (known as "enzyme induction") is an excellent example of genetic potential — i.e. the variation in the extent of expression of a genetic character over a wide (but strictly limited) range, according to the environment — that is described so well in the chapter on inheritance by amateur exponents of nature versus nurture controversies.

The last few chapters move towards more philosophical themes — in a stimulating and provocative fashion. The great contemporary arguments on reductionism in biology are touched on lightly, but with the wisdom of an intelligent compromise: "Each Science contains not only the informational content of the Sciences below it in the hierarchy, but contains specializations of its own which do not appear at all at lower levels" yet "... reductivism is the most successful explanatory technique that has ever been used in science". With the latitude provided by the various different interpretations of what is meant by "explanation" this goes a long way to dispose of many of the agonies of the reductionist controversy.

In the final paragraph of the last chapter, they write optimistically (and I believe truly): "In spite of all its frightening groans and rattle, the machine can still

be made to work, but not unless it comes to be accepted that the term welfare of human beings does not promote the interests of people at the expense of others..." but they also add "... or even the interests of the kind at the expense of other things" and their spirit is!

This may be in tune with the conservative trends, but taken literally, is plainly wrong. Progress, in plain words, cannot be made unless we are prepared to accept that the welfare of human beings does not promote the interests of people at the expense of others... but they also add "... or even the interests of the kind at the expense of other things" and their spirit is!

BOOKS

After Piaget

Piaget, Psychology and Education edited by Ved P. Varma and Philip Williams. Hodder & Stoughton, £7.50 ISBN 0 340 20218 6

Piaget, Psychology and Education is a collection of papers by distinguished psychologists written in honour of Jean Piaget's eightieth birthday. Piaget's main concern has always been epistemological not pedagogical, but these contributors demonstrate the extent to which his thinking has influenced those whose primary interests are educational. The papers are relatively brief and discuss a range of contemporary issues.

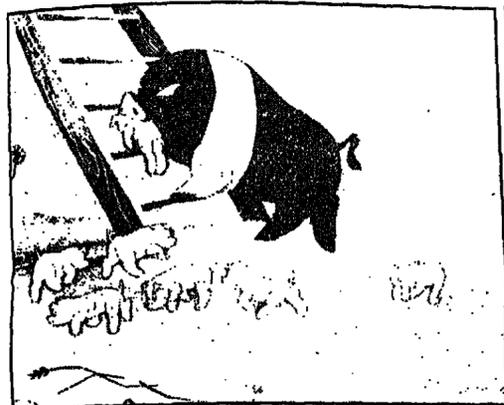
Part one is predominantly theoretical. In it Eric Lunzer gives a balanced appreciation of Piaget's work, commenting that "to treat the whole of Piagetian theory as if it were a repository of eternal wisdoms is more of an insult than a tribute". An important point to which he draws attention is Piaget's emphasis, his ability to put himself into the shoes of the child, to think as the child would think — and then to turn round on that thought and analyse its characteristics and mechanisms.

A most revealing paper is E. James Anthony's on emotions and intelligence which considers Piaget's altered remarks on the role of affect and his attempts to bring together intelligence and the emotions. It is probably not generally appreciated that Piaget recognized a somewhat similar to Freud's "affective unconscious", which Piaget, "did not visualize as a separate region of the mind, a limbo of forgotten ideas and affects waiting for a stimulus to emerge, but rather as part of a continuous movement along a consciousness spectrum". A major problem is that Piaget does not have any affective data comparable to his cognitive data but Anthony argues that in the course of Piagetian testing a clinically trained experimenter would notice "intellectual-emotional" responses whose absence from the Geneva protocols may mean that they were systematically excluded as "teasing" or "romancing" replies.

The papers in part two deal with more concrete questions. The problem of measuring aspects of cognitive development is discussed by Colin Elliott, director of the British Intelligence Scale project, and perception and cognition are seen by Gordon Butterworth as functionally interdependent with cognitive structures originating in perceptual processes. Ian Hunter considers the question, "What is memory development the development of?" with a series of particularly interesting questions which, as Graham says, succinctly account of moral development. In this section, as in the first, it is the paper which extends Piaget's ideas which is the most enlightening, namely the Newson's argument that the child's knowledge has its roots in early social interaction, particularly with the mother. They contend that "... the child only achieves a fully articulated knowledge of his world in a socially shared, as he becomes involved in social transactions with other communicating human beings".

Part three is devoted to educational implications and covers scientific and mathematical thinking, adolescent thought, cognitive growth programmes and language programmes for disadvantaged children. This volume includes extremely diverse viewpoints and therefore lacks a coherent focus but it does bring together a number of interesting and provocative approaches to educational questions affected by Piaget's seminal writings. One wonders why it is that Piaget's followers have managed to extend his thinking in accordance with their predictions rather than the theoretical predictions without the interlocking characteristic of many post-Freudian. Perhaps honour is due primarily to Piaget for emphasizing that cognitive conflict helps growth.

Ann Oakley, Jonathan Turner



A still from the animated film of Animal Farm made in 1954 by John Halas and Joy Batchelor in Great Britain. From Full Length Animated Feature Films, which describes the history as well as the technique and evolution of different animation methods. Written by Bruno Edera and published by Focal Press at £13.50.

Managing childbirth

Midwives and Medical Men: A History of Inter-Professional Rivalries and Women's Rights by Jean Donnison. Heinemann Educational, £6.50 ISBN 0 435 32250 8

As interest in methods of managing childbirth is growing fast, Jean Donnison's book on the practitioners of the art necessarily achieves a timely note. In fact it is a version of her doctoral thesis, and both it and the thesis have been in production a long time.

In her final chapter she attempts to locate the substance of the book within the present fiercely argued debate about "natural" versus "unnatural" birth. Certainly there must be considerations between what is done to women in childbirth, and the status and social characteristics of those who do it, but just what these considerations are is by no means immediately clear. Jean Donnison's book does not throw much light on this grey area, but it is a valuable documentation of the shifting relationships between various interest groups over the long period when the structure of childbirth management in Britain was subject to radical change.

Before the seventeenth century the care of women in childbirth rested with the midwife: midwifery itself was a non-medical craft whose practice lay quite outside the domain of medicine, medical training and medical corporate control. Today almost the reverse is true. While the majority of deliveries (whether domiciliary or institutional) are still attended by midwives, midwifery as an occupation is medically controlled and confined to the area of "normal" childbirth. To the question "why did this happen?" the book suggests a very specific form of answer, focusing on organizational changes — the failure of the midwives to form a sufficiently strong pressure group is adduced as a factor explaining their decline. This is the decreasing power of the Church which led to a breakdown of the old midwife-licensing system (the unproven) superiority of the new man-midwives' practice is explained in part by the fact that the wider social context in which, with industrialization, opportunities for women to become generally more

A word of warning to the sophisticated: a pinch of salt should be added for the proper savour of that delicious Medawar who writes "reductivism is the most successful explanatory technique that has ever been used in science". With the latitude provided by the various different interpretations of what is meant by "explanation" this goes a long way to dispose of many of the agonies of the reductionist controversy.

In the final paragraph of the last chapter, they write optimistically (and I believe truly): "In spite of all its frightening groans and rattle, the machine can still

the thesis in this case being concerned with the development of the profession of midwife and not with the history of childbirth management. Hence a substantial portion of the book is devoted to the various attempts from 1890 on to pass a Bill that would lay down the basis for a national organization of midwives.

Perhaps partly because of this emphasis on the background to the 1902 Midwives' Act, certain crucial questions remain unasked. As (female) midwifery came progressively under attack, another occupation — that of obstetrician — emerged for the first time. The terms "obstetrics" and "obstetrician" were not in common English usage until the second and third decades of the nineteenth century; the development of obstetric medicine and social characteristics of those who do it, but just what these considerations are is by no means immediately clear. Jean Donnison's book does not throw much light on this grey area, but it is a valuable documentation of the shifting relationships between various interest groups over the long period when the structure of childbirth management in Britain was subject to radical change.

Second, what of the dignity that men took over because they did it better? While the question cannot be confidently answered (because of lack of evidence) some of the available clues suggest that what power the male midwives possessed derived more from their status as men than from the techniques they practised. This raises a further issue — that of underlying ideologies about childbirth as "woman's business", a business with a potentially polluting and distasteful character. The more direct physical contact between practitioner and client called for in childbirth contravened existing modes of doctor-client interaction in the eighteenth century, since these only allowed for minimal body contact. What has to be explained, therefore, is how the male midwife and the male obstetrician were able to redefine the nature of the medical encounter so as to permit such techniques as vaginal examination. (Perhaps the avoidance of physical contact placed a premium on that most favoured technique — forceps delivery?)

Feminists, both old and new, have had a mixed relationship with the cause of female midwifery, being on the whole preoccupied with championing women's representation in more prestigious areas of medical practice. Most recently, legislation against sex discrimination has been interpreted as meaning a male, as well as a female, right to practise midwifery. It will be interesting, as Jean Donnison notes in her closing pages, to watch the development of relationships between different groups of practitioners and clients in the future, and how the twentieth century has made of childbirth will manage to survive the present wave of criticism.

Probation's past

Probation and After-Care: Its Development in England and Wales by Dorothy Bechet. Scottish Academic Press, £7.50 ISBN 7011 2179 3

The English probation service is one of the many state welfare services which have expanded rapidly in the post-war period. Officially born in the 1907 Probation of Offenders Act, in 1917 there were 300 full-time officers, by 1950 a thousand, and by 1973 nearly five thousand. Dorothy Bechet's book is the first full-length history of this development.

The received "official" view of the origins of the service, characterized especially by Joan King's *The Probation and After-Care Service*, is that probation as a method of penal treatment grew naturally out of voluntary initiatives in the legal and religious spheres in the late nineteenth century, and that the 1907 Act was more or less just a statutory blessing of these activities. In particular, there is an emphasis on the continuity of the work of the Police Court Missionaries, who became the dominant group among early statutory probation officers, and who had been operating in the courts since 1876. This continuity is accepted by a more radical writer, Peter Young, in a recent article which explicitly seeks the origins of probation in the activities of the Church of England Temperance Society, the body which appointed the first missionaries.

One of the great merits of Bechet's book is that she shows such history to be far too simplistic. The 1907 Act was not, in its origins, particularly influenced by the existence of the missionaries, and it was passed through Parliament without any necessary expectation on the part of the Home Office that the descriptive level, little use is made of the plentiful statistical material for the post-war period, which could have enriched the work.

A. E. Bottoms

National Library and Information Services

A Handbook for Planners

C.V. Penna, D.J. Foskett and P.H. Sowell

The special value of the Handbook is that it sets out to do two things. Firstly to demonstrate to those responsible for national development plans the key role of library and information services in national development; secondly to help those responsible for formulating and implementing library and information service development plans to understand how their activities can best conform to national needs.

The editors, assisted by the International Institute for Educational Planning, have been able to do this by drawing on the experience of practitioners in a wide range of both developing and industrialised countries.

CONTENTS
The Case for the National Planning of Library and Information Services (LIS). Articulation of the LIS Machinery. Preparation of the LIS Development Plan. The Organizational Structure and Legislative Basis of LIS. The Planning Process in Action. From Planning to Implementation. Bibliography. Index.

1876 · 208 pages · 0 408 70818 2 · £8.00

Butterworth & Co. (Publishers) Ltd., Boroough Green, Sevenoaks; Kent TN11 6PH Telephone 0732 884667

BOOKS

Subsistence or rebellion

The Moral Economy of the Peasant by James C. Scott
Yale University Press, £10.80
ISBN 0 300 01862 2

I came away from reading *The Moral Economy of the Peasant* very perplexed. On the one hand I am told that we must come to grips with the "phenomenology of exploitation". On the other hand, I am presented with an analysis of the "ethic of subsistence" which seems to be present in almost all "traditional agrarian societies".

Rejecting what he calls objective approaches to the peasant economy, James Scott argues for a concern with "the major existential problems of peasant life". He successfully convinces us of the need to treat the position of the peasantry from the point of view of the peasant. But very quickly we are led away from the particular to the universal, to an analysis which would seem to apply to African tribal systems, North American slavery, feudal Europe, and French and Irish peasants, not to mention the agricultural producers of South-east

Asia and we soon find that peasant political ideology is reduced to a demand for subsistence. For this reason it is very difficult to know what to make of this contribution to the growing body of literature on the aims, followings and causes of peasant rebellions.

The basic argument, upon which the political analysis rests, is that peasant rebellions are at least partly to be understood in terms of increased exploitation. Exploitation, however, is to be understood not in absolute terms, but rather in terms of the degree to which the exploited feels that minimal subsistence needs are not being met. For example, the inevitability of economic and ecological cycles, a fixed tax levied on a peasant producer is more exploitative than is a levy on a share of the crop, since the former claims a fixed share of the peasant's product regardless of how much he may produce in any particular year, while the latter, even if objectively more exploitative, is a better guarantee of minimum subsistence levels in bad years.

This general feature of the peasant outlook partially explains peasant rebellions in Burma and Vietnam in the 1930s. In these years peasant subsistence was

threatened by depression on the one hand, coupled with a fixed level of surplus extraction through tax on the other.

More generally, however, the subsistence ethic appears in a wide variety of social and historical settings—in other peasant rebellions, in the norms of reciprocity which link producers and elites, and in forms of stratification, tenancy and taxation in precapitalist agrarian societies.

All this is not to argue that had Scott pitched the argument at a more modest level, the book would be of no use. Quite the contrary, the detailed discussions of particular rebellions and the way they deal with our understanding of peasant politics. Because this analysis tackles the outbreak of the rebellions, the prevailing economic conditions and the forms of economic organization as well, it goes far beyond similar attempts by others to account for political unrest in South-east Asia. It provides, for example, an effective counter to those who would argue that such rebellions were born of progress not exploitation, of hope rather than despair. Scott's argument that taxation under such conditions led to an explosive issue cannot be countered.

However to suggest that peasant rebellions are generally a manifesta-

tion of the subsistence ethic is banal, and to say that most peasant rebellions are anti-tax rebellions is misleading. An anti-tax stance in Indonesia at the turn of the century, for example, while it may have served to mobilize peasants, aimed not at preserving peasant subsistence, but at reinstating the traditional elites and forcing cultivation which the Dutch had used to extract a surplus from the colony. It was the modernists, who stood against colonial domination of the Indonesian economy, and the communists, who added anti-capitalism to this anti-imperialism, who more successfully mobilized peasant interests. To reduce all this to the peasant demand for subsistence is to miss completely the complexity of the actual experience of particular peasants in particular societies in particular periods of history.

It is perhaps no accident that Scott, who starts out with a plea for just this kind of phenomenological understanding should in fact provide an analysis which is so crudely materialist, while those who have started with a more "objective" concept of exploitation are inevitably led to consider the complex ties of peasant political ideologies.

Joel Kahn

Development's new orthodoxy

Why Poor People Stay Poor by Michael Lipton
Macmillan, £9.50
ISBN 0 85117 0765

Professor Lipton has written a long, densely argued and vastly informed book on the thesis that policies for the development of poor countries are urban-biased and that as a result the rural poor stay poor despite economic growth of their countries. His arguments are based mainly on south Asian data but he offers them, sometimes a little rashly, as generally valid in the Third World.

Bias in policy is recognized by loss of equity and efficiency. The equity loss depends on the assumptions of diminishing marginal utility and inter-personal comparability of utility; the efficiency loss on the argument that the productivity of capital is directly related to the extent to which it is saturated with labour. Tax systems and price rigging that shift income and wealth from the poorest and most labour-intensive areas of economic life (i.e. small-scale farming) therefore re-

duce both equity and efficiency. These losses are held not to be transitory but to persist in the long run. The bias is held to be produced by the political power of urban interests and by intellectual influences, among which Lipton emphasizes Ricardian, neo-classical and Marxist economics and imaginative literature rather than (as might appear more obvious) the development economics of the 1950s and 1960s.

Lipton's categorization of town and country sometimes appears overdone. It leads to artificial constructions such as the handicap suffered by the countryside in having to spend more time preparing infants' food. It obliges Lipton to explain that not all urban residents are "really" town-dwellers, nor all rural dwellers "really" country-folk. When he writes on his first page that "the most important class conflict in the poor countries of the world today is . . . between the rural classes and the urban classes", a reader naturally expects evidence of this conflict—the confrontations and strikes, riots and skirmishes, battles lost and won. No evidence appears and over 300

pages later it is conceded that even "peasant movements are seldom directed against urban interests. . . . In fact, it is perhaps the countryside, like many another of the great social conflicts, exists in the eye of the beholder."

In the 1950s Gunnar Myrdal argued that market forces made rich areas richer and poor areas poorer by "circulating cumulative causation". The nexus of priority in attraction to the richer areas of the more mobile resources of the poor and partly in trade—the richer areas exporting manufactures and the poorer primary products while the prices of primary products fell relative to manufactures. Salvation lay in policy interventions to suppress market forces. Lipton accepts circular cumulative causation but argues that it is precisely policy that connects the prosperity of the rich areas to the poverty of the countryside. It is because of "price twists" and other discriminatory interventions that capital funds and human skills are attracted to the towns and the countryside is left to stagnate. Growth, Trade no longer figures as a disequilibrating mechanism because, in Lipton's view, the profitability of producing foodstuffs appears rela-

tively low only because of the price distortions imposed by policy. But salvation is now held to lie not in restoration of market forces, which Lipton distrusts scarcely less than Myrdal, but in changes in policies.

Policies, as Schumpeter pointed out, are politics and it is no revelation that they serve the interests of the politically powerful—what else are policies for? Lipton argues that the powerful are not monolithic, entirely self-centred or immune to persuasion. So far as they can be persuaded to reduce urban bias (to his credit he does not recommend revolutionary equity and efficiency must, according to his arguments, be increased. But though bias against the category he has distinguished may thus be counteracted, bias per se is inseparable from development policies and could only be diminished by means he would not countenance: lessening the economic significance of political decisions. He is emphatic that he does not want policy to become less important in development. His work is entirely in harmony with predominant thinking on development today and is a notable contribution to what might be called the new orthodoxy.

Douglas Rimmer

An exotic matrilineal society

The Nayars Today by C. J. Fuller
Cambridge University Press, £4.95 and £2.40
ISBN 0 521 21301 0 and 29091 0

This new and relatively small book by Chris Fuller rekindles my hope that the "hidden workings" of the perpetually exotic matrilineal social organization of the Nayars will, at last, be revealed. I feel it is high time that twentieth-century anthropology solved these ethnographic puzzles which were first noted 300 years ago. But however much we might dream of a simple answer, or the Nayars in a nutshell, Fuller's book shows instead precisely why the Nayars have been such a tough kernel to crack.

By now, the Nayars provide one of anthropology's most spectacular examples of how far a traditional system of domestic organization, property, and legitimate sexual relations can differ from our commonsense notions of "the family". The Nayars are a large, high-ranking caste in the state of Kerala in South West India who, until the latter part of the eighteenth cen-

tury, served as warriors in the armies of the small, rivalrous kingdoms of the Malabar Coast.

Their kinship and marriage practices immediately caught the attention of early European travellers, who noted that in certain areas of Kerala the Nayars lived in strictly matrilineal collectives: joint houses, *tharavadis*, and *tharavadis* units called *tharavadis*. All Nayar women underwent an intriguing prepubertal ritual which established a form of token marriage with a man from a customary allied tribe, but this "ritual husband" played little or no role in the women's adult social life. Instead, mature Nayar women received multiple lovers from their own or higher caste, each man visiting the women at night in her *tharavadis* and departing in the morning.

Thus, at least in the "classic" Nayar *tharavadis* of Cochlin, the matrilineal principle was carried to its logical extreme: women and their lovers resided separately in their respective *tharavadis*, children were raised by their mothers and mothers' brothers, and all property was managed jointly under the leadership of the eldest male.

Obviously reports of such tantalizing customs as these would

prompt a myriad of questions about how the system actually worked; in fact, a vast ethnographic literature has been generated in debating these questions. However, even before modern social anthropologists had begun to do fieldwork among the Nayars in this century, the "classic" Nayar system and its regional variants had largely disappeared under the impact of economic, political, and ideological forces arising in the eighteenth and nineteenth centuries.

It is Fuller's aim to make this dramatic historical transformation of Nayar society the focal point of his book. As the title implies, he first describes the Nayars today in an unadorned part of northern Travancore where he did fieldwork in 1971-72, and only in this light does he recapitulate and assess some of the varying anthropological issues which have provoked comment in learned journals. According to Fuller, the final demise of the Nayar matrilineal *tharavad* occurred largely in the Depression years; today the Nayars are monogamous, often live in nuclear families, possess individual property, and have abandoned virtually all the strict ritual observances associated with the old system. Fuller's analysis includes both a discussion

of the "classic" *tharavad* and a subtle argument to account for the differences (regional and temporal) noted in the transformation of Nayar society to its present pattern.

This book is intended to serve the interests of the student as much as the professional anthropologist, and for this reason many of the more arcane anthropological disputes are simplified and truncated. In fact, chapter three, "The Nayar Kinship System", is so streamlined that it leaves out any discussion of the kinship terminology and also omits the diagrams which would be necessary to understand Fuller's argument about cross-cousin marriage. His style and organization are at times redundant, as he builds the book sandwich by sandwich around parts of his PhD thesis. And on the printing and layout of this volume are disappointingly messy. Nevertheless, this study contains an extremely useful introduction to the issues of Nayar social organization as well as a detailed bibliography of contemporary and historical sources. It is an important, and in many ways unique, contribution to the anthropology of the Nayars.

D. B. McGilvray

Laplanders

The Skolt Lapps Today by Tim Ingold
Cambridge University Press, £2.95 and £2.95
ISBN 0 521 21299 5 and 29091 0

The Skolts have had the misfortune to occupy an area of the margin of the political and economic situation of a country, resettled postwar on the Skoltjivri reservation in northern Finland.

Tim Ingold provides a detailed analysis of the impact of recent changes and the bureaucratic control related to the Skoltjivri reservation. In view of these changes and the small size of the community, the book might be regarded as a "community study" rather than a "cultural study". It is more than a "community study" in that it places the Skolts in a wider historical and sociological context, to show that the general processes of social and economic change are not unique to the Skolts but are part of a broader process of regional development.

He rejects a model of development imposed from without, an essentially bureaucratic system, arguing that technological change and the penetration of the commercial economy in the Skoltjivri process of transformation has been paralleled in other parts of the world. While it is perhaps desirable to avoid the "internal/external" dichotomy altogether in the systems which cannot be seen as historically independent, Ingold certainly justifies his use of the terms "internal" and "external" in his analysis of the Skoltjivri reservation. That much of the structure of Skolt society is in terms of the breakdown of an intensive, symbiotic system, resulting from the loss of an ecological expansionist organization, is not surprising.

The traditional regime brought about the transition in man-animal relations which turned into a process of domestication and the economic development of the Skolts. Under the new regime, the Skolts are dominated by the activities of a small group of wealthy "big men", householders who were at one advanced stage of their domestic cycle in the when intensive controls were effectively dismantled. Men in this category have ceased to be actively involved in the reindeer economy and have become dependent on casual labour and welfare.

Ingold's analysis indicates the survival of an exclusively Skolt community is questionable, particularly given the high rate of emigration. But in demonstrating the diminishing economic and demographic viability of the Skoltjivri reservation, he offers a succinct, rounded study of the Skolts in their own right, and offers a succinct, rounded study of the Skolts in their own right, and offers a succinct, rounded study of the Skolts in their own right.

One of the most important conclusions of the book is that development is a process of "leap-frog" politics, the activities of political leadership negotiating directly with authority. Ingold's analysis of the consequences of the "leap-frog" politics, in the social and political areas, is a valuable contribution to the anthropology of political communities and level institutions, though it is dangerous to view a Skoltjivri reservation as a "leap-frog" politics. Ingold's "bourgeois" concept of culture is somewhat overstated, and his own study demonstrates, for example, that the social framework of the Skolts is not a "leap-frog" politics, but a "leap-frog" politics. Ingold's "bourgeois" concept of culture is somewhat overstated, and his own study demonstrates, for example, that the social framework of the Skolts is not a "leap-frog" politics, but a "leap-frog" politics.

John Gleason

Submerged by scholarship

The Works of John Dryden, volume XV edited by Earl Miner and George R. Gifford
University of California Press, £26.00
ISBN 0 520 02129 0

With this volume, the tenth to be published, the California Dryden reaches its half-way stage. It is, appropriately enough, exactly 21 years since the publication of the first volume but I am not sure that the edition has come of age. The project was always conceived on a grand scale, 20 volumes and a vast panel of distinguished editors; this volume, for instance, supplements the textual notes on each page with an additional 50 pages of collations, and an additional 50 pages of collations, and an additional 50 pages of collations.

In some respects it certainly is. Of the three works in volume 15, only *Don Sebastian* has been available in a reputable edition. For the other two, the opera *Albion and Albanus* and the comedy *Amphitryon*, the choice has been between two old editions, both corrupt. At the least, then, it is now easy to read the plays themselves. But each work has a full panoply of annotation and a substantial introduction and each volume has had a different editor. The result inevitably has been fluctuating standards of commentary, with too much of the eccentric and crass. This volume is one of the better ones, though the description of the scenery for *Albion* is still modelled

on the awful discussion of the technicalities of Restoration staging in volume eight by two other editors. We can now learn something about the historical and dramatic sources of *Don Sebastian*, about Grabin's music for *Albion*, and a little more about the connections of Dryden's *Amphitryon* to Molière's.

But the real test of a project like the California Dryden is not whether it lines the pockets of the publisher but whether it has provoked the reinvestigation of the author, whether there are new, interesting and exciting reappraisals of neglected areas of Dryden's work. Of course, there is a flood of writing but that is hardly restricted to Dryden studies. What there has been of interest has appeared in spite of, rather than because of, the editorial volumes. In the end, the heavy massiveness of the plan has been stifling and daunting; the introductions have been too long and tedious, the notes too often unnecessary. The works themselves, the reason for all the trouble, have been submerged—not waving, but drowning.

Yet these three plays mark a crucial and difficult stage of Dryden's writing. *Albion and Albanus* appeared in 1685 almost by accident, growing out of a prologue and turning into a fully-blown opera. The other two plays were written very much out of necessity, after the loss of the laureateship to all people, Shindvill, in the aftermath of the Revolution of 1688. But to some extent Dryden has lost touch with the stage and now rhymes more heavily than ever on Thomas Betterton. For Betterton designed the scenery; as Dryden acknowledges in the preface, "the descriptions of the Scenes, and other decorations of the Stage, I had from Mr Betterton, who has spared neither his industry, nor cost, to make this Entertainment perfect, nor for

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Peter Holland

Uniscient narrators, omniscient novelists

F. Scott Fitzgerald: The Great Gatsby by John S. Whitley
Edward Arnold, £2.95 and £1.50
ISBN 0 7131 5872 7 and 5873 5

Charles Dickens: David Copperfield by Philip Collins
Edward Arnold, £3.30 and £1.70
ISBN 0 7131 5935 9 and 5936 7

The object of this series, writes David Daiches, who now familiarly introduces of series, "is to provide a series of individual novels, plays and groups of poems and essays which are known to be widely read by students." The little Arnold series, *Studies in English Literature*, is well established, and these two titles add to an expanding series of carefully worked up popular and scholarly works of fiction; they offer a succinct, rounded study of the novel in question, and they offer personal interpretations and a restatement of the views of the critics. Given the necessary amount of their size and scope, these little books seem admirable, although seventy-five years

separate *The Great Gatsby* from *David Copperfield*, both novels have been taken as representative accounts of life in the decades which produced them, and both deal with the problems of responsibility and decision particularly of adolescent worlds. Angus Wilson, for one, sees *David Copperfield* as Dickens's most "Victorian" novel, and Philip Collins is able to "place" it in its age by briefly developing critical comparisons with *Jane Eyre*, *Pendennis*, *The Mill on the Floss*, and later with *Middlemarch* (though he twice advances Mr Casaubon to a doctorate which George Eliot failed to award him). As one would have expected of so dedicated a Dickensian, Professor Collins's reading of the novel, viewing it critically as a work of fiction and as a tale which bears directly on the personal history of the novelist.

He divides his study into four, developing a different but complementary theme in each short chapter. Collins concentrates on the nature of David Copperfield's autobiography and his growing awareness of the world around him. This emphasis allows him to deal with the Micawbers, the Peggottys and

the Steerforths last, and to see them both as contributory to David's story, and as distinctly Dickensian contributions to the art of characterization.

Nick Carraway is like David, an "uniscient" narrator, behind whom stands an omniscient novelist. At the end of his novel, however, Nick is denied an upward-pointing domestic angel and continues to see his world through a glass, and darkly. John Whitley seeks to prove the universality of the greatness of *The Great Gatsby*, which he points to its Americanness and its deliberate critique of an age which so spectacularly combined the heroic with the vulgar, the make-believe with the money-making. Though he tends too often to refer us to the weight of scholarly opinion, Whitley deals ably with the cleverness of the novel, and with Fitzgerald's significant, but divided, debts to Keats and the Romantics, and to the anti-Romantic Conrad.

One could only wish that students were always as well-served in criticism as they are by these neat, unpretentious studies of classics, models of the occasionally useful virtues of brevity.

Andrew Sanders

A substitute for Chaucer

Chaucer: The Canterbury Tales by Nevill Martin Brown
Edward Arnold, £2.95
ISBN 0 7139 0262 0

This new selection from Nevill Martin Brown's widely-read translation of *The Canterbury Tales* is, in outward appearance, a handsome volume that would grace any coffee-table. It is bound and typographically well, it contains a large number of attractive illustrations, many in black and white, depicting various aspects of Chaucer's world. There is, however, a contrast between the attractive appearance and its substance.

Coghill's translation are too well known to require discussion now; those who need a substitute for Chaucer, ingenious and lively but inevitably lacking in all the original's complex music and nuance of meaning, can find it here. The Prologue and 13 tales are reprinted, with an introduction virtually unchanged from the Penguin Classic edition of 1951, and therefore now inevitably dated, especially in its references to the *Karne de la Rose* and so-called *canterbules*.

What is new in this volume is the commentary on the illustrations, which is evidently the work of Endel Bernard Moore. This is provided by a disagreeably patronizing attitude towards medieval artists,

deriving from ignorance of the representational conventions they followed, and is moreover full of misinformation. Two particularly rich nuggets are the statements that cause they could exercise their ministrations where they listed" and that "Chaucer himself appears in one of his poems playing chess with Fortune". The likely readers of this book are not scholars and will have little defence against such misdeeds. The selection of illustrations is largely, though not entirely, conventional. It is unfortunately not usually possible to discover from the text the data of any particular illustration or the title of the work it illustrates.

A. C. Spearing

For quick consultation

Who's Who in Henry James by Glenda Leeming
Hamish Hamilton, £2.75
ISBN 0 241 89425 5

Who's Who in George Eliot by Phillis Hartnoll
Hamish Hamilton, £3.95
ISBN 0 241 89426 X

The Novels of Anthony Powell by James Tucker
Macmillan, £3.95
ISBN 0 333 17261 2

A Commentary on the Poems of Thomas Hardy by P. R. Panton
Macmillan, £10.00
ISBN 0 333 17918 8

Who's Who books for the works of major novelists are not usually hailed by academics; but there is a tendency for them to end up on one's shelf all the same, and not infrequently to be taken down and consulted. Those with faultless memories doubtless have no need of them; but the rest of us will probably find that they save us precious moments from time to time, and they should not, therefore, go unnoticed. Phillis Hartnoll's potted biographies are a good deal more readable and entertaining than Glenda Leeming's; but this is mainly because she quotes her author more (George Eliot being far more readable than either), and in any case books like these can be useful for quick reference, but nobody is well advised to settle down to read them.

It is a pity, though, that Leeming has omitted all the James stories, even substantial ones like *The Lesson of the Master* (this is almost exactly the length of *Daisy Miller*, which is included). Characters in the short stories are often sufficiently like those in the novels for this omission to take away much of the helpfulness of the book. In both these works, moreover, the omission of place-names (at least the houses, etc, where major characters live) is a substantial loss, and not balanced out in my view by being able to trace the Garrick's cat or Ralph Touchett's "rowdyish, bristling, bustling terror". Often the houses and places can be tracked down indirectly; but quite unsystematically. One finds that Mr Brooke lived at Tipton from the entry on Sir James Cheltenham, but (naturally enough) the entry

Simple and subtle

Port-Royal by Henry de Montfaucon
by R. Griffiths
Blackwell, £3.00
ISBN 0 631 00730 X

A good case can be made for the view that *Port-Royal* is Montfaucon's most perfect, yet least accessible, play. It combines the virtues of a good play with the virtues of a good book.

Turning to Jansenism in particular, Griffiths gives an excellent, condensed account of the history and ideology of the movement, having traced Montfaucon's own interest in the subject to a combination of family tradition on his maternal grandmother's side and a highly formative reading of Saint-Beuve's *Port-Royal* in 1929. This analysis of the play itself is a little brief on the question of its specific qualities as a theatrical experience. Nevertheless, Griffiths has many perceptive comments to make on its value as an analysis of human behaviour, as an account of conventional mores, as a study of high moral drama and as an explanation of the Jansenist contribution to Christianity in terms of physical and mental suffering on behalf of deep spiritual conviction. The notes added to the play generally elucidate the text and are further evidence of Griffiths's deep understanding of the fascinating and remarkable phenomenon that was seventeenth-century Jansenism.

John Cruickshank

الجزء 1350

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Statistical Mechanics, Fluctuations and Noise by A. H. S. Beck Edward Arnold, £12.50 and £7.50 ISBN 0 7131 3362 7 and 3363 5

Students of electrical engineering and applied physics, especially those interested in electronic devices, fusion engineering and quantum optics, are the target of this book. The first and third of these topics are with us and it is to be hoped that the second will be, especially since the idea of fast breeder reactors is becoming unpopular.

The subjects dealt with in this book are intellectually demanding enough for most undergraduates although one point which jarred was the discussion of pairing as it is much more satisfactory to note that the subject has a firm axiomatic foundation, than merely to appeal to experiment.

A lot of information is packed in. The first chapter outlines probability theory, as a precursor to the subject of statistical mechanics. The second introduces the Maxwell distribution of velocities and elementary kinetic theory based on the mean free path picture. Then the subject of statistical mechanics is started, mainly classical (Clibb), although quantum mechanical ideas are inserted. The author wishes to blend classical and quantum mechanics. It might have been better to treat them separately, but one is not obliged to follow the historical order of development.

Chapter four deals with the Fermi-Dirac distribution which is well known to all students of electrical engineering through its application to electrons in semiconductors. This chapter will undoubtedly be much consulted by undergraduates. It would have been useful, however, to give a diagram showing that the Fermi energy can be negative (it is in the text of course).

Base-Einstein statistics which are obeyed by photons and other particles of integral spin are introduced in the fifth chapter. It also contains some elementary matter (and laser) theory, since the Einstein coefficients used were derived from a study of thermal equilibrium. They are now applied to very non-equilibrium situations in chapter six dealing with fluctuations. The Weissenberg theory is derived in an appendix, but its importance is discussed in the chapter. Kinetic theory reappears in a rather more sophisticated form, i.e. Boltzmann's equation, in chapter seven. A discussion of the various moments of the equation is largely relegated to another appendix.

Chapter eight deals with plasma kinetics, a subject which has been actively pursued in recent years because of the interest in fusion power. The table showing typical values of Debye length appears to be wrong, since a length of 20cm is given for a glow discharge. The radius of the discharge tube must considerably exceed the Debye length in order to obtain a discharge plasma.

On the well known topic of "Landau damping" of plasma waves the author states that many papers were published on the subject, but seem rather sterile in retrospect. This is not entirely fair; the author states that the contrary interpretation is straight forward, but the main question was which contour should be used? It is not even clear without further discussion why one adds a contribution of $i\Gamma$ times a certain residue. Why not $2i\Gamma$ times? It is also very interesting to note that the perturbation in optical systems is dealt with because these represent a growth point at present. The last chapter discusses the relation between statistical mechanics and information theory. The author believes that the similarities are interesting and well worth understanding but probably not very deep. He is probably right, information problems can be fully discussed without invoking entropy.

J. E. Allen

BOOKS

Digital devices

Computing Systems Hardware by M. Wells Cambridge University Press £4.00 ISBN 0 521 29034 1

The author defines his intended audience as students in the second year of a course which includes a substantial element of computer science. It should certainly serve admirably for its intended audience, though the book should also be of wider interest and might well be useful for first-year students of computing science. The chapters cover basic aspects of digital systems; storage; input/output devices; data transmission; processing; and systems architecture.

The introductory chapter contains a good discussion of the principles of digital and analogue operations and of certain fundamental notions of hardware. However, a most surprising omission from a book of this sort is no mention whatsoever of software or even the word program. This is left in the final chapter and is inadequate even there. The chapter on storage is a good introduction to the basic mechanisms of the various storage techniques including semiconductor, core, wire and moving magnetic techniques. A summary helps to put this all into perspective.

The chapter on input/output devices discusses a wide variety of devices such as teletypes, paper tape reader and punch card reader, printers and graphics devices, with the aid of very clear diagrams. The principles of analogue to digital and digital to analogue converters are discussed at just the right level of detail. The data transmission chapter includes elements of the principles of serial theory, modulation, multiplexing, etc. A hefty slice of algebra is included here but can easily be avoided by most students.

B. K. P.

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BOOKS

Transforming a text

Micro Processors by J. Cole Cambridge University Press, £3.95 ISBN 0 521 29034 4

Many operations which are required in the course of creating or modifying a computer program, or extending the power of a programming language, can be framed as more or less complex textual transformations on program texts—for example, the transformation of a simple, lucid program construction into the longer and more complicated form required by the computer. A macroprocessor is a program capable of receiving a specification of such transformations, and effecting them on a given text. There are many in existence; they vary in details of implementation and in the attractiveness of their syntax, but each employs a common set of fundamental principles.

When introducing students to a subject like this, a teacher has a choice between a study in some depth of one macroprocessor, with the danger that the common principles may be obscured in a plethora of idiosyncracies (perhaps the danger in computer science), or a comprehensive survey which, while making principles clear, leaves the student with insufficient confidence actually to use one of these valuable devices.

Professor Cole's book avoids both of these dangers, though his aim is to discuss the purpose of the various systems and in particular their internal structure rather than to give detailed and intimate instructions for their use. My impression—having read a section devoted to a macroprocessor that I know and another devoted to one

John Ogden

ELECTRICITY SUPPLY: TRANSMISSION AND DISTRIBUTION

In the Electrical Engineering Series

This book meets the requirements of second and third-year honours students at universities and polytechnics and of those preparing for professional examinations. In being both up-to-date and written entirely in SI units, it will also be useful to electrical engineers and technicians concerned with transmission and distribution who wish to update their knowledge. The emphasis throughout is on the entity of the power system in design and operation and to enable the reader to appreciate this, the necessary theory of generators, transformers and networks is included in addition to transmission line theory. Paper £5.95 net.

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Mechanics of Fluids

R. A. Duckworth This is an introductory text to the subject of the mechanics of fluids for students of mechanical, civil, aeronautical and chemical engineering. The principles of the subject are illustrated by drawing the applications from the various specialist branches, whilst avoiding undue specialisation. Cased £8.50 net Paper £4.95 net

Longman

Electronics

Problems in Electronics with Solutions, Fifth edition by F. A. Benson Chapman and Hall, £3.95 ISBN 0 412 14770 X

There are a large number of texts on electronics and it is with trepidation that one opens a new one. Fortunately Dr. Close and Professor Yarwood, of the department of physics at the Polytechnic of Central London, have done exceptionally well. Their book is clearly written and the general quality of presentation is excellent. The content is aimed at students reading for a degree or diploma in science or engineering in which a substantial amount is devoted to electronics and the coverage of material is mostly fairly conventional for a textbook aimed at such readers.

One exception, however, is the chapter on opto-electronics and the inclusion of this subject is of rapidly growing importance in communications and optical imaging. A chapter on power control using thyristors is also not entirely standard. However, the use of AC phase control has become so widespread that its coverage in non-specialist books is becoming appropriate. Wiring circuits are discussed and in particular those using the unijunction transistor. As elsewhere in the book the treatment tends towards the descriptive with an account on applications. One of the most striking features of this book is the frequent use of worked examples. The treatment is usually non-mathematical for easy reading but in other ways is quite comprehensive. In the opening chapter on the physics of semiconductor materials a brief mention of amorphous semiconductors. In the next chapter on semiconductor diodes, IMPATT diodes and Gunn diodes as well as more lengthy sections on the junction diode, the Zener diode and the tunnel diode. The chapters on field effect transistors and on the bipolar transistor are aimed at helping the student to design circuits. Device parameters are frequently quoted, but it is disappointing that the likely spread of parameters is not. For example the pinch-off voltage and the drain current for zero bias are shown to be vital for VET design but no mention is made of their very wide variation, even for a particular device type. In this particular case it would be helpful to describe how very easily these two parameters can in fact be measured experimentally.

Operational amplifiers, waveform generators and logic circuits form the subject matter of the next three chapters. Useful modifications to standard circuits are included—the use of Darlington pairs in very low frequency multivibrators for example. However, analytical coverage is not as deep as in many textbooks, as shown in avoiding a derivation of the various waveforms in a multivibrator. So far as material not covered is concerned, the biggest disappointment is that there is nothing on digital multiplexers and nothing on digital circuits other than logic gates.

The value to students of worked examples is unquestionable and the book by Close and Yarwood is a fine example of this philosophy. Very different, in that no text is provided, the latest edition of Professor Benson's book on Problems in Electronics with Solutions remains a useful aid to students learning. Consistent chapters have been made in this edition, particularly in the increased emphasis towards transistor circuits. Sections such as that on logic circuits make the book seem much more in tune with the needs of students learning, only that the revision of this fifth edition has not gone even further in extending its coverage. It would be welcome to see more on digital systems and, although it might possibly be considered outside the scope of the title, on control electronics. However the 546 problems that are included are instructive and the solutions are clearly presented.

P. N. Dénbigh

Basic Lubrication Theory

by A. Cameron, Professor of Lubrication Engineering, Imperial College, London. This book lucidly presents the fundamental ideas of lubrication for advanced undergraduates, graduate and practising engineers. All important aspects are covered. 212 pp. 216 pages. February 1977. £8.75/\$12.25. Published by John Wiley & Sons Ltd.

Design of Construction and Process Operations

by D. W. Halpin, Georgia Institute of Technology, and R. W. Woodhead, University of New South Wales, Australia. A text presenting a new method of modelling processes typical of construction and techniques of construction operations. 247 pp. 248 pages. October 1976. £12.50/\$21.00.

Introduction to Digital Computer Technology 2nd Ed.

by L. Nathansky, University of New York. This edition clearly develops concepts of digital computer technology, and has been thoroughly revised and updated to include material on small-scale, medium-scale and large-scale computers. 247 pp. 248 pages. April 1977. £10.75/\$18.40. ISBN 0 201 02907 0. 248 pages. May 1977. £8.50/\$11.00.

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by A. R. Mitchell, Mathematics Department, Dundee University, and R. Wait, Computational and Statistical Science Department, Liverpool University. Finite element methods can be derived from the classical methods of Ritz, Galerkin and least squares, or from the method of collocation; those methods are described and compared and exercises are provided. 247 pp. 248 pages. January 1977. £8.95/\$13.50. ISBN 0 201 02907 0. 248 pages. May 1977. £8.50/\$11.00.

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RAPIDLY QUENCHED METALS

Nicholas J. Grant and Bill C. Gjesson, editors. Processes such as "split cooling", vacuum evaporation, "spitting" and chemical deposition are considered in this book, but its main emphasis is on the remarkable physical, mechanical, chemical, magnetic, electronic and other properties of rapidly quenched metals. Depending upon the alloy and cooling rate employed, it is possible to obtain what are in effect totally new materials with noncrystalline (amorphous) structures, extended solid solubilities, novel metastable phases, or distinctive microstructures. Amorphous metals may have a combination of properties not easily duplicated by crystalline materials: they may be almost impervious to radiation damage, or have a zero or negative coefficient of resistance, possess very low ultrasonic attenuation, or be magnetically soft (that is, have low coercivity and magnetostriktion). The interpretation of the behaviour of amorphous metals poses a particular challenge since the understanding of the mechanical and electromagnetic properties of solid metals has in the past been generally based upon their crystal structures. Published March, 1977 £16.00

MODERN TRENDS IN LOGISTICS RESEARCH

W. H. Marlow, editor. The papers in the five sections of this book cover: Issues and Problems in Logistics; Information Processes and Systems Design; Production, Scheduling and Facility Layout; Probabilistic and Statistical Models; Mathematical Programming. Published January, 1977 £16.00

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The Mathematics of Finite Elements and Applications 11—MAFELAP 1975

edited by J. R. Whiteman

April 1977, xiv+573pp, £21.00/\$41.00 0 12 747252 5

This is the proceedings of the 2nd Conference on the Mathematics of Finite Elements and Applications, held at Brunel University in April 1975. The purpose of the Conference was to bring together mathematicians and engineers whose common interest was finite element methods. The resulting book consists of eleven invited papers and thirty-two short contributed papers, with the invited papers defining the state of the art of finite elements and the contributed papers describing current research.

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Functional Analysis in Modern Applied Mathematics

Ruth F. Curtain and A. J. Pritchard

July/August 1977, approx 340pp 0 12 196250 4

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Computational Mathematics and Applications Series editor: J. R. Whiteman

Finite Element Programming

E. Hinton and D. R. J. Owen

June/July 1977, xiv+288pp, £11.80/\$23.00 0 12 349350 1

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BOOKS Automatic control

Multivariable Control Theory by J. M. Lavton
Penguin, Pp. 111, £11.00
ISBN 0 901223 89 1

The availability of fast, flexible, reliable and cheap information processors in the form of digital computers has been a powerful stimulus for the rapid development of automatic control techniques. This computer revolution has brought control system design in two ways. The computing capacity now available is such that very complicated controller structures can in principle be used, and thus the control system designer has to tackle the problem of designing more complex multivariable systems (that is systems having many inputs and outputs). Computers can also be used as design tools; this is particularly the case when they are fitted with graphical output devices and used in an interactive mode. Hence there has been a great deal of research activity devoted to developing the theory of multivariable control in a form suitable for use with computer-aided design methods.

Mr Lavton's book, which is the first volume in the Institution of Electrical Engineers' new Control Engineering Series, provides a simple introduction to some of these recent developments in multivariable control theory which underlie the development of new control design techniques. This whole field is in a state of very rapid development, and it is possible that widely-accepted and definitive solutions in the main design problems will emerge in the near future. In the meantime, those teaching post-graduate courses in automatic control will welcome a clear and concise introduction to some of the main aspects of this difficult and important problem.

The text deals with system representation in both differential equation (state-space) and transfer function (frequency-response) form. In doing so, however, little account is taken of recent developments which show the deep and intimate relationship between these two approaches. The material is organized into three parts, the first of which covers very well known ground, and provides a simple introduction to basic system properties. This material is widely available and its inclusion in a book

of this short length is rather difficult to justify. The remaining two parts deal with various techniques of feedback controller design and with optimization theory, respectively. These are again presented as quite separate blocks of material with little attempt to coordinate them. The main source of new material, not already fairly widely available in existing textbooks, lies in the second part dealing with design. Since this is only some 78 pages long the amount of real novelty in the book is quite small. The following design techniques are covered: pole shifting, the commutative and dyadic transfer matrix approaches, the inverse Nyquist method, and the sequential design technique. In each case a straightforward and clear description is given of the basic ideas, well illustrated by simple examples. This succinct exposition will undoubtedly be useful to those approaching the literature dealing with these topics for the first time.

It is always difficult to judge when to write a book dealing with a rapidly developing field. In this case no account has been taken of work done since 1974, and in particular of the very recent and highly original development of an extension of root locus methods to the multivariable case, and on the forging of close and illuminating links between a variety of state-space and frequency-response design methods. In attempting to cover a very wide field, a price has been paid in terms of a distinct lack of depth. Little discussion is given of real design problems, and no serious attempt is made to give a critical assessment and comparison of the various design techniques discussed. No treatment is given of the effect of nonlinearities on frequency-response approaches. The experienced reader is thus likely to be left without any coherent overall view of the current situation in multivariable control research, although he will have a good basic grasp of several distinct approaches to particular facets of the problem of multivariable control. Despite these shortcomings this will be a useful text for post-graduate courses in automatic control at first-year undergraduate and master's degree levels.

A. G. J. MacFarlane

Computer theory

Programs, Machines and Computation by K. L. Clark and D. F. Cowell
McGraw-Hill, £5.25
ISBN 0 07 084067 9

Programs, Machines and Computation contains a new, classified approach to what is taught in most first courses of computer theory. The first chapter introduces the basis of the authors' theory. They define a program (as a flowchart), a machine and a computation. In addition to the basic properties of program schemata, they emphasize proving programs, which is vital for theoretical machines and may become an accepted practical technique.

In the second chapter they introduce more examples (Turing machines and various machines with registers); they add the idea of one machine simulating the behaviour of another and use it to demonstrate the importance of step-wise refinement in programming. Here they develop the standard results and also strike a blow for better programming. The third chapter reviews the various types of recursive functions via the structure of flowcharts. They deduce the key

results of structured programming from the theory of recursive functions. The fourth chapter covers computability.

The fifth chapter extends the model of computers to include simple input and output. This chapter and the next cover the usual results on acceptors, including the introduction of non-deterministic. Finally they define grammars, and relate them to the previous work on acceptors. The usual results on ambiguity, derivation trees and the undecidability theorem appear.

The authors take the trouble to link theory to both current practice (flow charting) and to future methodology, which is a step in the right direction. It makes me wonder how important the "normal results" are, when many of them are only used in examinations. Their style is good though fluency in set theory is required to read the book. There are exercises (but not enough) without solutions.

This is a useful text for the first course on computer theory, but I look forward to the time when a theory of real computers and programs is produced.

R. J. Botting

Reviewers

J. E. Allen is fellow of University College, Oxford; Wilfred Beckerman, fellow of Balliol College, Oxford, is consultant to the OECD on income maintenance; John Cruickshank is professor of French at the University of Sussex and editor of French Literature and its Background; Joel Kahn is lecturer in anthropology at University College, London; A. G. J. MacFarlane, author of

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Engineering books

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CONTROL ENGINEERING Theory, Worked Examples and Problems R. W. Buckley £2.50 paperback

FLUID POWER SYSTEMS Theory, Worked Examples and Problems A. B. Goodwin £3.25 paperback

BASIC ENGINEERING MECHANICS J. H. Hughes and K. F. Martin £5.95 paperback

HYDRAULIC ANALYSIS OF UNSTEADY FLOW IN PIPE NETWORKS J. A. Fox £12.95

BUILDING ECONOMICS Second Edition W. H. Seeley £7.95

CIVIL ENGINEERING SPECIFICATION Second Edition W. H. Seeley £5.95

TESTING METHODS AND RELIABILITY POWER A. Simpson £3.85 paperback

REINFORCED CONCRETE DESIGN W. H. Mosley and J. H. Bungey £12.00 hardcover £5.95 paperback

METAL FORMING TOOL PROFILES AND FLOW T. Z. Blazynski £17.50

HYDRAULIC BEHAVIOUR OF ESTUARIES D. M. McDowell and B. A. O'Connor £12.50 May 1977

MECHANICAL SCIENCE III P. R. Lancaster and D. Mitchell Macmillan Technolion series about £3.95 limp September 1977

For further details please write to Rosemary Haines (THES), The Macmillan Press Ltd., Little Bressingham Street, London WC2R 3JF.

LECTURERS DEPARTMENT OF ACCOUNTING AND FINANCE Applications for the above-mentioned positions are invited from suitably qualified persons with interests in teaching in the areas of business finance and financial accounting. 31st May, 1977.

Classified Advertisements

Index to Appointments Vacant, Wanted and other classifications

- Appointments vacant
Universities
Fellowships & Studentships
Polytechnics
Technical Colleges
Colleges and Institutes of Technology
Colleges of Education
Colleges of Further Education

- Colleges and Departments of Art
Administration
Overseas
Government
Industry
Adult Education
Librarians
General Vacancies

- Appointments wanted
Other classifications
Awards
Announcements
Exhibitions
For Sale and Wanted
Courses
Holidays and Accommodation
Typing and Duplicating

AUSTRALIA

Applications are invited for the following posts, for which applications close on the dates given. SALARIES (unless otherwise stated) are as follows: Professor £28,000; Professional Fellow £27,000; Senior Lecturer £10,000-£12,000; Lecturer £8,000-£10,000; Senior Tutor £12,148-£13,000. Further details, conditions of appointment for each post, method of application and applications form, where applicable, may be obtained from the Association of Universities (App.), 26 Gordon Square, London WC1H 9PF.

University of New England Armidale, New South Wales

LECTURER: URBAN AND REGIONAL PLANNING (Advertisement) (Advertisement) Duties will include teaching aspects of urban and regional planning, environmental planning and development, and urban and regional studies. The appointee will be expected to supervise honours students and will play a major role in developing the Department's research programme. Opportunities for applied research in urban and regional planning are available. The appointee should have a PhD or equivalent qualification in urban and regional planning. Applications should be sent to the Academic Registrar or from Professor J. D. B. Miller (Head of the Department) in the University, 31st May, 1977.

LECTURING FELLOW IN THAI Faculty of Asian Studies The appointment will be in the Department of Indonesian, Malay and regional studies and the appointee will be required to take up duty in January 1978, or as soon as possible after that. The appointee will have a special responsibility for the collection and preparation of materials for the teaching of Thai as a foreign language to native speakers of English. Candidates should have an excellent knowledge of both Thai and English, and have a solid background of experience in teaching Thai at tertiary level. Preference will be given to an applicant with an understanding of the role of applied linguistics in foreign language teaching. 27th June, 1977.

BRUNEL UNIVERSITY SCHOOL OF SOCIAL SCIENCES

READERSHIP IN SOCIOLOGY Applications are invited from sociologists or social anthropologists for a Readership in Sociology. The post is tenable from 1 October, 1977. Salary according to qualifications and experience within the national scale, £5,443-£7,951 plus £450 London Allowance. If potential candidates want to make informal soundings, would they please contact Professor Keith Hopkins (01-883 7188 extension 624).

TEMPORARY LECTURER IN SOCIOLOGY Applications are invited for the post of Temporary Lecturer in Sociology, made possible by the granting by Council of unpaid leave of absence to an established Lecturer for a period of one year from 1 September, 1977. Preference may be given to candidates with a special interest in Modern British or Comparative Social Institutions, but other applications are welcome. Salary within the Lecturer scale £3,566-£8,055 plus £450 London Allowance. The appointment is likely to be made towards the lower end of the scale. Applications forms and further particulars from the Assistant Secretary (Establishment), Brunel University, Uxbridge, Middlesex UB8 3PH or telephone Uxbridge, 371188 extension 40, closing date, 27 May, 1977.

THE UNIVERSITY OF GUYANA

VACANCIES - DEPARTMENT OF MANAGEMENT STUDIES Applications are invited to fill the following positions in the Department of Management Studies.

1. PROFESSOR Applicants should have a Ph.D. degree with considerable University teaching experience in Management and must produce evidence of research and publications. In addition to his teaching duties the successful candidate will be responsible for planning and conducting courses at degree and diploma levels and for guiding research. He will also be asked to carry out administrative duties.

2. SENIOR LECTURER Applicants should have a higher degree, preferably a Ph.D. with University teaching experience in Management and must produce evidence of research and publications. The successful applicant will be required to teach courses at degree and diploma levels and expected to carry out relevant research.

3. LECTURERS (2) Preference will be given to applicants with a higher degree. In addition to teaching, the successful candidates will be expected to carry out relevant research. Applicants for the above positions must be capable of teaching at least two of the following courses: Personnel Management, Industrial Relations, Comparative Labour Movements, Human Resources Development and Manpower Planning, Factory Organisation and Work Study, Advertising, Export Promotion, Product Design and Development, Marketing, Wholesaling and Retailing, Accountancy, Principles of Management, Organisational Behaviour.

SALARY SCALES (per annum) U.S. \$1 = G\$2.55: Professor U.A.1: G\$15,400 - G\$20,000. Senior Lecturer U.A.2: G\$12,360 - G\$18,300. Lecturer U.A.3: G\$9,000 - G\$14,760. Benefits include housing allowance, contributory pension and medical schemes. Anyone recruited from overseas will receive up to four full economy air passages (i.e. for himself, wife and unmarried children up to eighteen years of age) from point of recruitment, limited removal expenses and a Settling-in Allowance. Applications (3 copies) stating name, date of birth, marital status, qualifications and dates obtained, work experience (with dates), names and addresses of three referees (one of the referees must be present or last employer where applicable), must reach the Personnel Section, University of Guyana, P.O. Box 941, Georgetown, Guyana, before May 21, 1977.

THE UNIVERSITY OF LEEDS

CENTRE FOR COMPUTER STUDIES Applications are invited for the following posts in the Centre which, as well as undertaking teaching and applications, provides the University Computing Service. The University has recently approved the institution of new courses leading to degrees in Data Processing.

4 LECTURESHIPS Two of the Lectureships are newly created posts in Data Processing and it is intended that one of the appointments will be made in the upper part of the scale of a candidate with commercial or industrial experience. The interests of candidates for the two remaining lectureships may be in any of Numerical Analysis, Operational Research, Graph Theory, Compilers, Operating Systems, Computability or Complexity Theory but preference may be given to candidates with interests in the theoretical aspects of computing. Salary at an appropriate point on the scale £3,535-£5,655 according to age, qualifications and experience.

2 POSTS OF COMPUTING ASSISTANT/COMPUTER OFFICER Duties involve assistance in all aspects of the maintenance and development of the University Computing Service, provided on the 1906A and DEC 10 computers and from links to other centres. An opportunity normally exists of participating in the academic teaching of the Centre. In addition, one of the successful candidates will be expected to devote the major part of his/her time in the first year of teaching. Salary at an appropriate point on one of the following scales according to age, qualifications and experience: Computer Officer £3,335-£5,627, £3,831-£5,655. Computing Assistant £2,804-£4,190, £4,403-£4,611. Application forms and further particulars may be obtained from the Registrar, The University, Leeds LS2 9JT, quoting reference number 48/7/00. Closing date for applications 20th May, 1977.

UNIVERSITY COLLEGE, GALWAY JUNIOR LECTURESHIP IN EDUCATION JUNIOR LECTURESHIP IN SPANISH Applications are invited for the above full-time posts. Salary scale £3,902-£5,476 plus marriage and family allowances. Closing date for the receipt of applications 27 May, 1977. Further information may be obtained from the Registrar.

UNIVERSITY COLLEGE GALWAY LECTURESHIP IN MATHEMATICS Applications are invited for the above full-time statutory post. Salary scale £5,167 x (8) = £2,720 plus marriage and family allowances. Closing date for the receipt of applications 25 May 1977. Further information may be obtained from the Registrar.

BELFAST THE QUEEN'S UNIVERSITY BRUNEL SCHOOL OF ENGINEERING DEPARTMENT OF BUILDING TECHNOLOGY Applications are invited for the post of Lecturer in Building Technology. The successful candidate will be expected to teach courses in Building Technology and to supervise honours students. Preference will be given to an applicant with an understanding of the role of applied linguistics in foreign language teaching. 27th June, 1977.

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Polytechnics continued

The Polytechnic of North London

Applications are invited for the following posts, available from the 1st September, 1977.

Faculty of Social Studies:

Principal Lecturer in Sociology

Applicants should have a good honours degree in Sociology, and preferably a higher degree. A capacity for academic leadership and substantial experience of course administration will be expected.

The successful candidate should be able to assume the responsibilities of Course Tutor for the B.Sc. Sociology Degree.

Temporary Lecturer Grade II in Sociology

The appointment is for one year from 1st September, 1977 to 31st August, 1978. Applicants should be able to teach Sociology at Undergraduate and Honours level and to supervise students in their Honours Sociology Studies. A good honours degree in Sociology is essential, with preferably a higher degree.

Faculty of Economic and Administrative Studies:

Senior Lecturer in Business Policy

Applicants should be able to teach Business Policy, and Management Theory on Degree, D.M.S. and specialist short courses. The post will involve some day, evening and occasional weekend teaching and course organisation. Applicants must have a suitable degree or professional qualification and have a minimum of five years' managerial experience.

Lecturer Grade II in Accounting and Business Finance

To teach accounting subjects at D.M.S. and degree level, with an emphasis on the application of theory and techniques. Relevant teaching and industrial/commercial experience is essential. Applicants must have a recognised professional qualification and will normally be expected to have a degree in a Business Studies subject.

Lecturer Grade II in Business Operations (Purchasing and Supply)

Will have responsibility for the Purchasing and Supply option on D.M.S. and D.M.S. (Concurrent) courses. This may include World Resources and Trade, Stores and Inventory Control and Purchasing. Relevant teaching and industrial experience is desirable. Applicants must have a degree in Business Studies or Economics.

Salary Scales: (inclusive of London Allowance)

Principal Lecturer £2083-£2739 (Bar) £2082 Senior Lecturer £2746-£3699 (Bar) £2741 Lecturer II £3008-£3637 (Main) at the top of the Lecturer Grade II scale can expect progression to the Senior Lecturer grade subject to satisfying an efficiency requirement. Application forms and further particulars (These state post in which interested) can be obtained from the Establishment Officer, The Polytechnic of North London, Holloway Road, N7 8DU. Closing date for applications: 29th May, 1977.

THE POLYTECHNIC HUDDERSFIELD

Department of Computer Studies and Mathematics

Lecturer II or SENIOR LECTURER

Computing ACA/129

Candidates should possess a good Honours Degree in Computer Science and/or MSc, together with experience in one of the following areas: data base systems, computer security and multi-programming systems or application, information systems design. Degree courses in BA (Hons), BA computing in first year have recently been approved by CMAA to start in September 1977.

Statistics ACA/130

Candidates should possess a good Honours Degree in Statistics. An interest in industrial/business experience in Operational Research would be an advantage.

School of Architecture

LECTURER II or SENIOR LECTURER, IN ARCHITECTURE ACA/131

Candidates should be well qualified architects with a special interest in the teaching of the history of Architecture in relation to its social context. There may be opportunities to design teaching in the studies also.

Department of Catering Studies

LECTURER II

Hotel Catering Administration ACA/132

Candidates should be qualified to teach Hotel and Catering Administration to students taking degrees in Hotel and Catering Administration and an HND in Hotel and Catering Administration. Applicants should preferably be graduates with industrial experience and with specialist knowledge of the operational and social aspects of Hotel and Catering Administration.

Food Studies ACA/133

Candidates should preferably be graduates with industrial experience in the hotel and catering industry. The successful applicant will be expected to teach both theoretical and practical aspects of food studies on the three courses the Department offers - BSc in Catering Studies, BA in Hotel and Catering Administration and an HND in Hotel and Catering Administration. Salary: St. £1,201-£5,025 (Bar) - £4,417 plus £132 supplement.

Staff are expected to undertake activities, including research, in addition to teaching duties. Further details and application forms, which should be returned by 30 May, 1977, from the Establishment Officer, The Polytechnic, Queensgate, Huddersfield HD1 3DH. (Tel: 01484-22288 - Ext. 2228).

Faculty of Human Sciences—Livingstone House

Department of Health and Social Studies

Lecturer II/Senior Lecturer in Social Work

Applicants are invited to join the team of social work staff teaching the honours CSWS course and the social work option of the honours CNAA BA Hons Sociology course. Applicants must be professionally qualified and should have a relevant honours teaching experience would be an advantage. (Ref: S/AO 2944)

Lecturer II/Senior Lecturer in Nursing Studies

Applicants should have a degree and be professionally qualified. The lecturer will be responsible for the coordination of the nursing studies in the honours courses in Health Studies. The post will involve some day, evening and occasional weekend teaching and course organisation. Applicants must have a suitable degree or professional qualification and have a minimum of five years' managerial experience. (Ref: S/AO 2944)

Salary Scales:

Lecturer II - £3,279-£5,493 Senior Lecturer - £5,031-£5,417 (Plus appropriate Government Supplement of up to a maximum of £192 and applicable London Allowance.)

Further details and application forms from: Senior Staffing Officer (Health Studies), Livingstone House, London E17 4JL. Telephone No: 01-527 2272, Extension 20. Closing date: 25 May, 1977. Please quote appropriate reference no.

NELP North East London Polytechnic

Department of Management in the Public Services

Principal Lecturer in Management of Higher Education Institutions

To contribute to the development of the Higher Education Management Centre, the activities of which encompass British universities, southern administrative programmes, European programmes for the administrators with OECD, national overseas programmes for developing countries and institutional development projects. Candidates should preferably have higher degree in economics, or financing or accounting or quantitative methods or experience in conducting management development programmes, willingness and relevant experience to be able to undertake relevant research in HE. SALARY SCALE: Principal Lecturer £5,940-£7,578 Plus £312 Government Supplement (Ref: S/AO 2924)

Candidates are welcome to discuss the post informally with John Fook, Head of Department at Dunbury Park (024-641 2141).

Department of Services to Industry

Senior Lecturer in Financial Management/Management Accounting

Applicants should be well qualified academically/professionally qualified persons to teach financial management/management accounting subjects within a variety of programmes. These include the Diploma in Management Studies (Manufacturing Management), Diploma in Management Studies (Manufacturing Management) and also special short courses for senior and middle management. The successful candidate will be expected to assist in case study development and course administration. SALARY SCALE: Senior Lecturer £5,031-£6,417 Plus £312 Government Supplement (Ref: S/AO 2924)

Both posts are based at Dunbury Park, Dunbury, near Chislehurst, Kent. Further details and application forms from: The Senior Staffing Officer, NELP, North East London Polytechnic, Forest Road, London E17 4JL. Telephone No 01-527 2272, Ext. 20. Closing date: MONDAY, 16th MAY, 1977. Please quote above reference no.

ARMC Anglian Regional Management Centre

NEWCASTLE UPON TYNE POLYTECHNIC

DIRECTOR

Applications are invited for this post which will become vacant on September 1, 1977, on the retirement of the present Director.

Salary: £13,650 (including £180 supplement) Application forms, returnable by May 27, and further particulars are obtainable from the Chief Administrative Officer, Newcastle upon Tyne Polytechnic, Ellison Building, Ellison Place, Newcastle upon Tyne NE1 8ST.

PRESTON

THE POLYTECHNIC

ASSISTANT ACADEMIC

Applicants are invited to apply for the post of Assistant Academic in the Department of Catering Studies. The successful candidate will be responsible for the day to day running of the Polytechnic's catering services, examining and supervising staff, and will have a major role in the development of the catering services. The successful candidate will be expected to have a minimum of five years' experience in the catering industry, and will be expected to have a suitable degree or professional qualification. Further details and application forms from: The Senior Staffing Officer, Preston Polytechnic, Preston, Lancashire. Closing date: 15th May, 1977.

LONDON

CITY OF LONDON POLYTECHNIC

SCHOOL OF BUSINESS STUDIES

DEPARTMENT OF ACCOUNTANCY AND TAXATION

SENIOR LECTURER (2 Posts)

Applicants must be professionally qualified, and have a minimum of five years' experience in the accounting industry. The successful candidate will be expected to have a suitable degree or professional qualification. Further details and application forms from: The Senior Staffing Officer, City of London Polytechnic, 100 Abchurch Lane, London EC4A 3DF. Closing date: 15th May, 1977.

CARDIFF

UNIVERSITY COLLEGE

CHEMISTRY DEPARTMENT

Applicants are invited for the post of Lecturer in the Department of Chemistry. The successful candidate will be expected to have a suitable degree or professional qualification. Further details and application forms from: The Senior Staffing Officer, University College Cardiff, Cardiff. Closing date: 15th May, 1977.

LOTHIAN REGIONAL COLLEGE OF COMMERCE AND TECHNOLOGY

LECTURER IN EDUCATION AND HISTORY

Applicants are invited to apply for the post of Lecturer in Education and History. The successful candidate will be expected to have a suitable degree or professional qualification. Further details and application forms from: The Senior Staffing Officer, Lothian Regional College of Commerce and Technology, Edinburgh. Closing date: 15th May, 1977.

SOUTHAMPTON

LA SAINTE UNION COLLEGE OF HIGHER EDUCATION

LECTURER II IN THEOLOGY AND RELIGION

Applicants are invited to apply for the post of Lecturer in Theology and Religion. The successful candidate will be expected to have a suitable degree or professional qualification. Further details and application forms from: The Senior Staffing Officer, La Sainte Union College of Higher Education, Southampton. Closing date: 15th May, 1977.

LANCASHIRE

EDNE HILL COLLEGE OF HIGHER EDUCATION

TEMPORARY LECTURESHIP IN ENGLISH

Applicants are invited to apply for the post of Temporary Lecturer in English. The successful candidate will be expected to have a suitable degree or professional qualification. Further details and application forms from: The Senior Staffing Officer, Edne Hill College of Higher Education, Lancashire. Closing date: 15th May, 1977.

GLoucestershire

GLoucestershire COLLEGE OF ART AND DESIGN

PHOTOGRAPHY

Applicants are invited to apply for the post of Lecturer in Photography. The successful candidate will be expected to have a suitable degree or professional qualification. Further details and application forms from: The Senior Staffing Officer, Gloucestershire College of Art and Design, Gloucestershire. Closing date: 15th May, 1977.

LANCASHIRE

LANCASHIRE COLLEGE OF HIGHER EDUCATION

LECTURER II IN THEOLOGY AND RELIGION

Applicants are invited to apply for the post of Lecturer in Theology and Religion. The successful candidate will be expected to have a suitable degree or professional qualification. Further details and application forms from: The Senior Staffing Officer, Lancashire College of Higher Education, Lancashire. Closing date: 15th May, 1977.

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SHEFFIELD

THE CITY POLYTECHNIC

CHIEF CLERK

Applicants are invited to apply for the post of Chief Clerk. The successful candidate will be expected to have a suitable degree or professional qualification. Further details and application forms from: The Senior Staffing Officer, Sheffield City Polytechnic, Sheffield. Closing date: 15th May, 1977.

CITY OF LONDON

THE POLYTECHNIC

RESEARCH FELLOW

Applicants are invited to apply for the post of Research Fellow. The successful candidate will be expected to have a suitable degree or professional qualification. Further details and application forms from: The Senior Staffing Officer, City of London Polytechnic, London. Closing date: 15th May, 1977.

THE POLYTECHNIC

RESEARCH FELLOW

Applicants are invited to apply for the post of Research Fellow. The successful candidate will be expected to have a suitable degree or professional qualification. Further details and application forms from: The Senior Staffing Officer, The Polytechnic, London. Closing date: 15th May, 1977.

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